

State of Transportation In Alameda County

2002-2003 Performance Report

Alameda County Congestion Management Agency
December 18, 2003

Table of Contents

EXECUTIVE SUMMARY

Alameda County Transportation System	i
Alameda County Characteristics	ii
Journey to Work Information from 2000 Census	ii
Description of Performance Measures	ii
Performance Measures	iii

1 — INTRODUCTION

Alameda County Transportation System	1
Alameda County Characteristics	2
Journey to Work Information from the 2000 Census	2
The 2003 Annual Urban Mobility Report	2
Performance Measures	3

2 — HIGHWAYS

Level of Service	4
Average Speed/Travel Time	6
Delay/Duration of Congestion	7
Road Maintenance	14
Accident Rates	17

3 — TRANSIT

Transit Operators	18
Routing	20
Frequency	22
Coordination of Transit Service	25
Ridership	27
Vehicle Maintenance	32
Observations about the Transit System	34

4 — BICYCLE	35
-------------------	----

APPENDICES

A — Designated Roadway and Transit Systems of the Congestion Management Program and Metropolitan Transportation System	A-1
B — Level of Service Definitions	B-1
C — Transit Routing by Operator	
C.1 — Directional Route Miles by Operator in Alameda County	C-1
C.2 — Total Vehicle Miles by Operator in Alameda County	C-2
C.3 — Service Coverage by Operator in Alameda County	C-3
C.4 — Total Annual Passengers Boardings by Operator in Alameda County	C-4
D — 2002 Top 10 Congested Locations in Alameda County	D-1
E — Countywide Bicycle Facilities Constructed in 2002	E-1

TABLES

E.1 — Performance Measures	iii
E.2 — Summary of Applied Performance Measures for Alameda County Transportation System	iv
1 — Performance Measures	4
2 — Average Vehicle Speed in the Afternoon Peak	6
3 — Average Vehicle Speed in the Morning Peak	6
4 — Comparison of Speeds in the Morning Peak	9
5 — Comparative Travel Times for Origin/Destination Pairs in the Afternoon Peak	10
6 — Total Daily Delay on Freeways	11
7 — Top 10 Congested Locations in Alameda County	12
8 — Top 10 Congested Locations in Alameda County	13
9 — Rating of Pavement Condition	15
10 — Pavement Condition in Local Alameda County Jurisdictions	15
11 — State Facility lane miles in need of rehabilitation in Alameda County	16
12 — Accident Data for State Freeways in Alameda County	17
13 — Transit Routing within Alameda County	21
14 — Transit Service Frequency	23
15 — Total Annual Systemwide Passenger Boardings	28
16 — Total Annual Systemwide Passenger Boardings (per revenue vehicle mile)	30
17 — Total Annual Systemwide Passenger Boardings (per revenue vehicle hour)	31
18 — Average Weekday Passenger Boardings within Alameda County	32
19 — Miles between Mechanical Road Calls for AC Transit and LAVTA	33
20 — Mean Time between Service Delays for the BART and ACE Systems	33

Alameda County Congestion Management Agency

2002-2003 PERFORMANCE REPORT
December 18, 2003

FIGURES

1 — Level of Service on Freeways and Arterials5

2 — Transit Lines Serving Major Alameda County Transportation Terminals 26

A.1 — MTS Roadway SystemA-1

A.2 — MTS Transit SystemA-2

EXECUTIVE SUMMARY

The **2002-2003** Performance Report is the **seventh** report prepared by the Alameda County Congestion Management Agency (ACCMA). The purpose of the Report is to provide information on how the transportation system is functioning in Alameda County. The report will also help identify transportation improvements to be considered in developing the Capital Improvement Program for the Congestion Management Program (CMP) and in updating the long-range Countywide Transportation Plan.

Alameda County Transportation System

This Performance Report focuses on a portion of the transportation system in Alameda County defined as the Metropolitan Transportation System (MTS). This system includes the entire CMP-designated roadway system plus major arterials, transit services, rail, maritime ports, airports and transfer points that are critical to the region's movement of people and freight. Figures A-1 and A-2 in Appendix A depict both the CMP-designated system and the MTS. Data in this report is labeled as either pertaining to the CMP network or to the MTS.

Highway

There are about 215 miles of state facilities and 306 miles of local arterial roadways on the MTS in Alameda County. The CMP network, a subset of the MTS, consists of:

- 155 miles of interstate freeways;
- 89 miles of conventional state highways; and
- 26 miles of local arterial roadways.

Transit

The following transit services are available in the County:

- BART;
- Bus service (both local and transbay) from AC Transit, Livermore-Amador Valley Transit (LAVTA), and Union City Transit, public-private shuttle services throughout the county and subscription bus service in East County;
- Ferry service, provided by the Alameda/Oakland Ferry and Alameda Harbor Bay Ferry; and
- Rail service, provided by the Capitol Corridor (Sacramento-San Jose) and Altamont Commuter Express (Stockton-San Jose).

Bicycle

The ACCMA Board approved the Countywide Bicycle Plan on June 28, 2001. When completed the proposed countywide bikeway network will total approximately 492 miles, of which 158 miles are on

existing facilities. Between July 2001 and June 2002 (Fiscal Year 2002), approximately 18 miles of facilities on the countywide plan were constructed. The percentage of completed countywide miles is 36 percent, up four percent from last year.

Alameda County Characteristics

The California Department of Finance estimated that Alameda County had a population of **1,496,200** at the end of 2002. Of the 58 counties in California, Alameda County was the 7th largest county in the State of California and the second largest in the Bay Area. ABAG estimated that there were 751,700 jobs in 2000.

Journey to Work Information from 2000 Census

The 2000 Census included questions on how workers traveled to their workplace. According to this data, Alameda County workers were slightly more inclined to use an alternative mode to arrive at their workplace as compared to workers in the rest of the Bay Area.

	Drive Alone	Carpool	Transit	Walk	Other	Work at Home
Alameda County	66.4 %	13.8%	10.6 %	3.2 %	2.5 %	3.5 %
Bay Area	68.0 %	12.9 %	9.7 %	3.2 %	2.2 %	4.0 %

The census also provided information on the average time workers travel to their jobs. The average time reported in 2000 was 30.8 minutes as compared to 25.8 minutes in 1990. The increased travel time could be the result of increased congestion or that workers were making longer work trips. Information on trip lengths has not yet been released by the Census Bureau.

Description of Performance Measures

Table E.I presents the list of performance measures approved in the CMP. These performance measures address three modes of transportation: highways, transit and bicycle. Measuring the conditions of each mode relied primarily on available data and established data collection processes. Summary tables are provided within the body of the report and more detailed data are provided in the appendices.

Table E.1 — Performance Measures

Highway	Transit	Bicycle
Level of Service	Routing	Implementation of Countywide Bicycle Plan
Average Speed/ Travel Time	Frequency	
Delay/Duration of Congestion	Coordination of Services	
Road Maintenance	Ridership	
Accident Rates	Vehicle Maintenance	

Performance Measures

Table E.2 provides an overview of the applied performance measures for the Alameda County transportation system in 2002. For more detailed information and explanation please refer to the complete 2002 Performance Report. Some notable observations found in the data include:

- Congestion, as measured by vehicle hours of delay (VHD), decreased by 4,300 hours or 6.6 percent in 2002
- Alameda County accounted for six of the 10 most congested freeways in the Bay Area
- Alameda County experienced the most congestion in the Bay Area; almost twice the number of hours of delay in Santa Clara County and three times more than Contra Costa County.
- I-80 in the morning maintained its rank as the most congested corridor in the Bay Area. SB I-880 in the morning continued to be the second worst congested corridor.
- I-5 80 westbound AM made the list to 5th rank from its 12th rank in 2001. EB I-5 80 in the evening became the third most congested freeway in the Bay Area from its 5th place in 2001.
- I-880 northbound, the HOV section to SFOBB, was dropped out of the list from its 9th rank in 2001.
- While congestion increased, average speeds on both freeways and arterials showed little change. The disparity between the amount of VHD between the third and fourth ranked congested corridors (7,040 and 3,910 respectively) indicates that some freeways are significantly more congested than others. (Note: This data is from the 2002 LOS Monitoring Report)
- Congestion on EB I-580 in the afternoon increased 40 percent.
- SR 24 made the top 10 list in Alameda County for the first time.
- Transit ridership for Alameda County transit operators decreased about three percent in 2002. Beginning in July 2001, overall ridership began to decline as a result of the economic downturn.
- About 18 miles of bicycle facilities on the countywide network were constructed in 2002

Table E.2 — Summary of Applied Performance Measures for Alameda County Transportation System

Performance Measure	Objective of CMP	2002 Results	Observation
<i>HIGHWAYS</i>			
Level of Service (based on 2002 monitoring)	Mobility Air Quality	Freeways: LOS A dropped about 5 percent; B doubled; C and D increased; E decreased; and F remained the same. Arterials: LOS A dropped; B almost doubled; C, D and F dropped; and E remained the same.	The percent of segments with LOS A dropped for both arterials and freeways. Similarly, the number of LOS B segments doubled. The change in percentage in the remaining categories varied.
Average Speed	Mobility Air Quality Land Use	Freeways: 51.2 mph for the afternoon peak Freeways: 42.0 for the morning peak Arterials: 23.3 mph for the afternoon peak	Average speed during the evening peak on arterials remained unchanged. The average freeway speed for the morning peak increased 4 miles per hour
Travel Time	Mobility Air Quality Land Use	Travel times for 5 origin-destination pairs continued to show auto significantly faster than transit. Bicycle trips in the northern part of the county continue to compete well with both auto and transit trips.	In general, transit trips took more than twice as long as trips by auto. (Note: Some of the increase in trip time may be due to a change in method of collecting data.)

Performance Measure	Objective of CMP	2002 Results	Observation
Duration of Congestion (freeways only)	Economic Air Quality	Daily VHD decreased by 4,300 hours or 6.6 percent. I-80 continues to be the most congested corridor in the Bay Area, with congestion increasing 300 hours. I-880 SB near the County line remained the number 2 spot followed by I-580 as number 3. I-680 moved from 3rd to 5th.	This was the first decrease in VHD since the CMA began monitoring the transportation system. Alameda County experienced twice as much delay as Santa Clara County and three times more than Contra Costa County. The Top 4 congested corridors in the County account for two-thirds percent of total delay. Not all corridors realized a decline in delay; the eastern and southern parts of the County had increases. The I-580 corridor now accounts for 25 percent of the total congestion in the Top Ten compared to 28 percent for the I-880 and I-680 corridors combined and 22 percent for I-80
Maintenance (Local)	Economic	Pavement Condition: Good, 70.4% Fair 12.8% Poor, 11.6% Very Poor, 5.2%	Percentage of roads reported to be very poor decreased about 4 percent since 2000. Other results are not directly comparable because of modifications made by MTC to the PCI ranges.
Accident Rate	Mobility Air Quality Economic	Of the 10 freeways located in Alameda County, 8 had lower accident rates in 2002	Accidents on the most congested corridors decreased since 2000. The rate of accidents on I-980 and SR 24 increased.

Performance Measure	Objective of CMP	2002 Results	Observation
<i>TRANSIT</i>	Mobility		Surface miles increased by 28% for the amount of service and 16% for patronage for the same period.. These numbers also decreased slightly in the last fiscal year
Routing	Air Quality	Surface miles covered by transit increased 21% between 1994 and 2002. However, there was 5% decrease during the last fiscal year.	
	Land Use		
Frequency	Mobility	During peak period, 93 percent of bus routes have 40-minute headways or less; 30% % arrive every 15 minutes.	Mid-day headways 30 minutes or less increased by 7 routes.
	Air Quality	BART headways vary 2.5 to 15 minutes during peak.	Evening headways 30 minutes or less increased 8 routes.
	Land Use		
Coordination of Services	Mobility	Transfer facilities are located at BART, AMTRAK, ACE, Dublin and Livermore Transit Centers, Greyhound and ferry terminals	Greatest number of transfer opportunities is found at the BART stations.
	Air Quality		
Ridership	Economic	2000 Census indicates 10.6 percent of Alameda Co. commuters use transit in comparison to 9.7 percent in Bay Region.	The ridership data for transit has increased steadily since 1994.
	Air Quality		
	Land Use		
Vehicle Maintenance	Air Quality	Bus Service: Miles between mechanical road calls increased for LA VTA and decreased for AC Transit since 2001, but are both well above average. Rail: Mean time between service delays improved for BART and decreased for ACE since 2001.	

Alameda County Congestion Management Agency

2002-2003 PERFORMANCE REPORT

December 18, 2003

Page vi

Performance Measure	Objective of CMP	2002 Results	Observation
<i>BICYCLE</i>			
Completion of Countywide Bike Plan	Mobility Air Quality	<p>Countywide Bicycle Plan proposes approximately 490 miles of countywide facilities, with about 158 miles existing.</p> <p>About 18 miles of new facilities were constructed in e past year.</p> <p>The work is about 36 percent complete.</p>	<p>Completion of Citywide Plans: There are about 405 miles of completed bicycle facilities on the citywide bicycle networks and 624 miles of unconstructed, planned facilities.</p> <p>The citywide system is about 65 percent complete.</p>

1 — INTRODUCTION

The 2002-2003 Performance Report is the seventh report prepared by the Alameda County Congestion Management Agency (ACCMA). The purpose of this Report is to provide information on how the transportation system is functioning in Alameda County. The report will also help identify transportation improvements to be considered in developing the Capital Improvement Program for the Congestion Management Program (CMP) and in updating the long-range Countywide Transportation Plan. Following this introduction, the Report is presented in three sections: highways; transit; and bicycle. Each section specifically addresses performance measures for the three modes of transportation, as approved in the CMP (shown in Table 1).

Alameda County Transportation System

This Performance Report focuses on a portion of the transportation system in Alameda County defined as the Metropolitan Transportation System (MTS). The MTS includes the entire CMP-designated roadway system plus major arterials, transit services, rail, maritime ports, airports and transfer points that are critical to the region's movement of people and freight. Figures A-1 and A-2 in Appendix A depict both the CMP-designated system and the MTS. Data in this Report is labeled as either pertaining to the CMP network or to the MTS.

Highway

There are about 215 miles of state facilities and 306 miles of local arterial roadways on the MTS in Alameda County. The CMP network, a subset of the MTS, consists of:

- 155 miles of interstate freeways;
- 89 miles of conventional state highways; and
- 26 miles of local arterial roadways.

Transit

The following transit services are available in the County:

- BART;
- Bus service (both local and transbay) from AC Transit, Livermore-Amador Valley Transit (LAVTA), and Union City Transit, public-private shuttle services throughout the county and subscription bus service in East County;
- Ferry service, provided by the Alameda/Oakland Ferry and Alameda Harbor Bay Ferry; and
- Commuter Rail service, provided by the Capitol Corridor (Sacramento-San Jose) and Altamont Commuter Express (Stockton-San Jose).

Bicycle

The ACCMA Board approved the Countywide Bicycle Plan on June 28, 2001. When completed the proposed countywide bikeway network will total approximately 492 miles, of which 158 miles are on existing facilities.

Alameda County Characteristics

The California Department of Finance estimated that Alameda County had a population of 1,496,200 at the end of 2002. Of the 58 counties in California, Alameda County was the 7th largest in the State and the second largest in the Bay Area. ABAG estimated that there were 751,700 jobs in 2000.

Journey to Work Information from the 2000 Census

The 2000 Census included questions on how workers traveled to their jobs. According to this data, Alameda County workers were slightly more inclined to use an alternative mode to arrive at their workplace as compared to workers in the rest of the Bay Area.

	Drive Alone	Carpool	Transit	Walk	Other	Work at Home
Alameda County	66.4 %	13.8 %	10.6 %	3.2 %	2.5 %	3.5 %
Bay Area	68.0 %	12.9 %	9.7 %	3.2 %	2.2 %	4.0 %

The census also provided information on the average time workers travel to their jobs. The average time reported in 2000 was 30.8 minutes as compared to 25.8 minutes in 1990. The increased time could be a result of increased congestion or that workers were making longer work trips. Information on trip lengths has not yet been released by the Census Bureau.

The 2003 Annual Urban Mobility Report

Each year the Texas Transportation Institute publishes the Annual Urban Mobility Report. The 2003 Report summarizes 20 years of data between 1982 and 2001 for 75 small to very large metropolitan areas, including the San Francisco-Oakland area. The report identified trends based on these areas and the available data:

- *Congestion has grown in areas of every size:* The average annual delay per person for the 75 urban areas studied increased from 7 hours in 1982 to 26 hours in 2001 with an increase of 4 hours in the last 5 years. The increase in the San Francisco-Oakland area over the same time period was from 12 hours to 42 hours, higher than the average for the 75 areas.

Alameda County Congestion Management Agency

- *Roads and public transportation systems handled more trips:* Between 1982 and 2001, passenger-miles of travel increased over 91 percent on the freeways and major streets and 100 percent on transit systems.
- *Congestion costs are increasing:* In 2001, total congestion for the 75 areas came to \$69.5 billion including delay and excess fuel consumed, with \$3.38 billion in the San Francisco-Oakland urban area alone.
- *Transit reduced travel delays:* Public transportation results in savings during the peak periods in urban areas. If public transportation service were discontinued and the riders traveled in private vehicles, and additional 1.1 billion hours of delay would have occurred in 2001 in the 75 urban areas.

According to the Texas Transportation Institute, the solution to congestion is a diverse set of options requiring funding commitments and a variety changes in the ways transportation systems are used. The type of solution will vary from area to area, but could include: more transit and roadway capacity, greater system efficiency, better management of demand using tolls and pricing incentives, changing the way development occurs and assuming realistic expectations. Large cities will be congested as well as key points in smaller cities, but congestion does not have to be an all day event. Reliability of the transportation system is also emerging as a very important issue. Currently, crashes, vehicle breakdowns, weather, special events, construction and maintenance account for about 50 percent of all delay on roads.

Performance Measures

Table 1 presents the list of performance measures approved in the CMP. The measures address three modes of transportation: highways, transit and bicycle. Measuring the conditions of each mode relied primarily on available data and established data collection processes. Summary tables are provided throughout the body of this report; more detailed data can be found in the appendices.

Table 1 — Performance Measures

Highway	Transit	Bicycle
Level of Service	Routing	Implementation of Countywide Bicycle Plan
Average Speed/Travel Time	Frequency	
Delay/Duration of Congestion	Coordination of Services	
Road Maintenance	Ridership	
Accident Rates	Vehicle Maintenance	

2 — HIGHWAYS

Level of Service¹

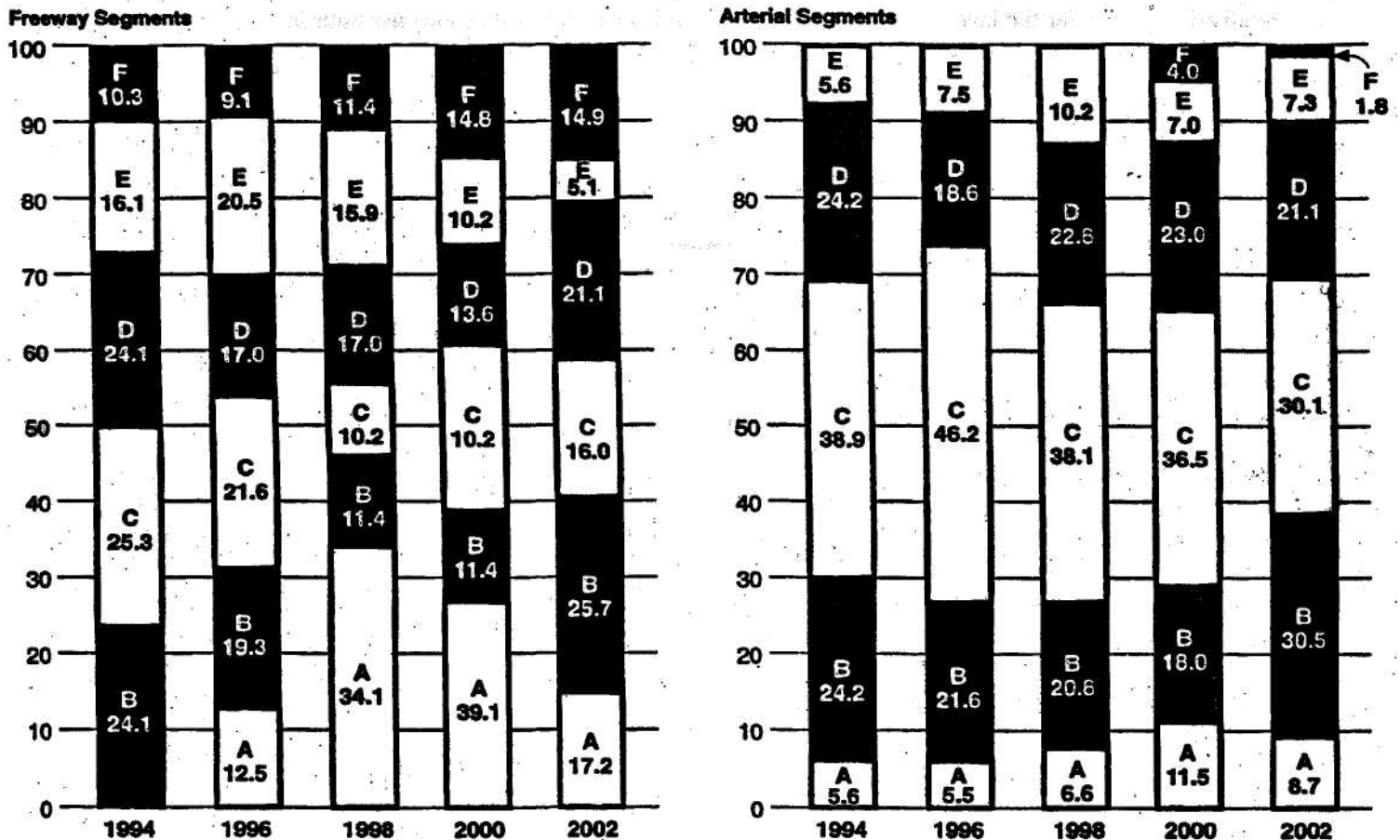
Biennially in even numbered years, the ACCMA monitors the level of service (LOS) on all freeways and arterial roadways designated as the CMP network. Based on travel speeds, LOS is categorized into six levels: A through F. LOS A represents no congestion and LOS F represents the most congestion (see Appendix B for more detail on LOS). As shown in Figure 1, the overall 2002 level of service on both freeways and arterials are similar to previous years. However, there were some notable exceptions:

- I-580 eastbound improved from LOS D to B in the segment between I-238 in Central County and the I-680 interchange in Pleasanton.
- LOS east of the I-680 interchange significantly worsened.
- The 10-mile stretch between the I-680 interchange and SR 84 in Livermore reported LOS F.
- SB I-580, from I-80 to Harrison Street in Oakland deteriorated from LOS A to LOS D.
- NB I-880, from Hegenberger Road to High Street in Oakland deteriorated from LOS A to LOS D.
- NB I-880, from Tennyson to Alvarado-Niles in South County deteriorated from LOS B to LOS E.

¹ For detailed information see *Monitoring the Level of Service for the Alameda County CMP Designated Roadway System 2002*.

Figure .1 Level of Service on Freeways and Arterials

Level of Service on Freeway* and Arterial* Segments Between 4-6 pm on the Average Weekday 1994-2002 (In Percent)



* Includes alt 88 segments
on the CMP freeway

Source: Alameda County CMA, LOS Monitoring Reports 1994-2002

Arterial levels of service appeared to have deteriorated slightly. There was a decrease in the percent of segments operating at LOS A in 2002; however, the percentage was better than in 1994-1998. On a positive note, the percentage of segments operating on LOS F decreased from four percent in 2000 to 1.8 percent in 2002.

Average Speed/Travel Time

Average highway speed is the average vehicular travel speed over specified segments, measured in each lane during the peak period. The ACCMA collects data biennially for the afternoon and morning peak periods. Table 2 indicates that travel time in the afternoon peak, as measured by speed, remained relatively stable over the last eight years. Average travel speed was 2.02 miles per hour lower in 2002 than in 1994 for arterials and 3.41 miles per hour higher for freeways for the same time period. The 2002 average speed demonstrates that, as a whole, the transportation system is operating similarly to 2001. Although the average is similar, some individual segments improved while others may have gotten worse.

Table 2 — Average Vehicle Speed in the Afternoon Peak (in miles per hour)

Road Type	Center-line miles	1994	1996	1998	2000	2002
Arterials *	96.2 **	25.29	25.48	22.63	23.64	23.27
Freeways ***	135.7**	47.80	49.86	51.47	51.02	51.21

Source: Alameda County CMA, LOS Monitoring Reports, 1994-2002

Notes:-

LOS will be monitored next in Spring 2004.

* Includes local arterials and conventional state highways

** Higher than actual mileage due to rounding

*** Includes Interstate and other freeways

Shown in Table 3, speed data collected between 1994 and 2002 for the morning peak indicates that average speeds were 4.87 miles per hour lower in 2002 compared to 1994. However, average speeds were slightly higher, 3.93 miles per hour, in 2002 than in 2000. Note: This was the first time since 1994 that speeds actually increased from the previous reporting period.

Table 3 — Average Vehicle Speed in the Morning Peak (in miles per hour)

1994	1996	1998	2000	2002
46.9	44.1	42.4	38.1	42.03

Note: The number of segments monitored increased from 55 to 90 miles in 2002. The results are not directly comparable.

Table 4 compares vehicle speeds for selected segments during the morning peak. Notable observations found in the data include:

- There is no consistent pattern of changes in speeds for the morning peak period.
- Segments on southbound I-880 and I-238 showed increases while southbound I-680 between Bernal and Niles and westbound I-580 between Portola and the I-680 interchange had slower speeds.
- The section of the I-680 freeway, between Niles and Mission Boulevard, had higher speeds of about 10 mph as a result of the auxiliary lane that opened in March 2001.

Origin/Destination Pairs

Since 1996, the ACCMA has compared travel times for auto and transit for five origin/destination pairs within Alameda County (four new pairs were added in 1998). One pair also included travel time for bicycle. The results, shown in Table 5, indicate that travel time by automobile continues to be less than by transit. In general, it took more than twice as long to travel by transit, as by auto. Note that transit travel improved in all but two of the pairs.

In addition to auto and transit time, travel time was also conducted for bicycle travel for Pair 2. Similar to previous years, bicycle trips in the north part of the County continue to compete favorably with both auto and transit in 2002.

Delay/Duration of Congestion

Vehicle Hours of Delay

Caltrans annually collects information on travel time for freeways in Alameda County and the Bay Area. The number of vehicle hours of delay (VHD) indicates whether congestion is increasing or decreasing. The data is collected to identify: location of congestion; time of day that congestion occurs; and length of congestion (duration).

Table 6, Total Daily Delay on Freeways, identifies the VHD on all Alameda County freeway facilities between 1997 and 2002. Congestion increased dramatically by 64.5 percent between 1997 and 2000, with the largest increase between 1999 and 2000 coincident with the economic boom. Total VHD increased by 6.3 percent in 2001 despite the downturn in the economy. However, this trend ended in 2002, when the county experienced a 6.6 percent decrease in congestion with a reduction of 4,300 VHD. Vehicle hours of delay in Alameda County was twice that in Santa Clara County and three times more than Contra Costa County; the second and third respectively most congested counties in the Bay Area.

Top 10 Congested Locations

Out of the top 10 worst congestion locations in 2002 in the Bay Area, I-80 westbound and I-880 southbound and SR 84 southbound maintained their 1st, 2nd and 10th rankings respectively from 2001. However, there have been significant changes in rankings of other Alameda County highways. The major change has been the addition of I-580 westbound to 5th position from 12th in 2001. I-580 eastbound moved up to 3rd from 5th rank, I-680 southbound dropped from 3rd to 8th rank and I-880 northbound HOV section to SFOBB dropped out of the list from 9th place in 2001.

Data from Caltrans for the Highway Congestion Monitoring Program for 2000, 2001 and 2002 were compared to identify the Top 10 most congested freeways in Alameda County (see Table 7). Daily congestion in the Top 10 decreased by 3,395 VHD during the one-year period between 2001 and 2002, a trend that continues from 2000. Congestion during the morning peak period was almost three times that of the afternoon peak period (32,920 VHD in the a.m. and 11,920 VHD in the p.m.). While there is a significant disparity between the two peak periods, there has been no change since 2001. It should be noted that the difference between the two peaks was smaller in the 2001 and 2002 reports than in the 2000 Performance Report. Delay in the morning period in 2000 was four times greater than in the afternoon period.

In terms of overall rank within the County, the top two congested corridors, westbound I-80 in north county and southbound I-880 in south county, remain the same since 2001. However, there have been significant changes in the third and fourth most congested corridors since 2001. Eastbound I-580 in the afternoon and westbound I-580 in the morning in the Tri-Valley have moved up from the 4th and 8th most congested corridors to 3rd and 4th bumping southbound I-680 in the morning in the Tri-Valley to 5th from 3rd in 2001.

In 2002, the first four Alameda County congested segments (I-80 westbound in north county, I-880 southbound in south county, and I-580 eastbound and westbound in the Tri-Valley) accounted for 29,540 hours or two-thirds of the VHD. The I-680 and I-880 corridors combined accounted for 12,480 VHD or 28 percent of the total congestion in the Top 10 (compared to 36 percent in 2001), while the I-80 corridor accounted for 22 percent. In the southbound I-680 corridor alone, congestion has decreased 136 percent during the morning peak by 4,910 hours, from 8,510 VHD to 3,600 VHD. Congestion in the I-580 corridor in the Tri-Valley has increased 41 percent since 2001 (7,775 VHD in 2001 compared to 10,950 VHD in 2002) and accounts for 25 percent of the congestion in the Top Ten.

I-80 eastbound between I-580 and Gilman in the afternoon made the Top Ten for the first time in 2001 and moved from 9th to 7th place in 2002, although VHD has remained the same. Eastbound Rt. 92 on the San Mateo Bridge approach in the afternoon is no longer on the Top Ten list and eastbound SR 24 at the Caldecott Tunnel in the morning has been added to the list for the first time as 10th.

Table 4 — Comparison of Speeds in the Morning Peak (in miles per hour)

Segment	1994	1996	1998	2000	2002
<i>I-880 Southbound</i>					
• Marina to A St.	51.8	44.0	57.4	38.2	50.1
• A St. to Rte 92	47.6	25.1	58.1	15.9	21.9
• Rte 92 to Tennyson	56.0	50.7	53.6	31.3	42.5
• Tennyson to Alvarado-Niles	55.7	51.6	36.3	28.8	46.2
<i>I-880 Northbound</i>					
• Alvarado-Niles to Tennyson	29.5	33.6	42.3	32.9	31.3
• Tennyson to Rte 92	46.6	42.5	49.6	45.9	41.4
• Rte 92 to A St.	52.9	52.0	55.3	36.3	44.8
• A St. to Marina	53.8	49.8	52.7	57.3	55.8
<i>I-238 Westbound</i>					
• I-580 to I-880	20.0	22.1	20.6	18.0	22.5
<i>I-880 Southbound</i>					
• Rte 262 to Dixon Landing	50.2	16.8	9.6	11.4	N/A
<i>I-680 Southbound *</i>					
• Alcosta to I-580	44.8	57.7	65.3	57.7	63.0
• I-580 to Bernal	58.3	61.3	67.2	64.6	63.5
• Bernal to Niles	43.3	41.7	40.3	56.8	46.2
• Niles to Mission	29.5	11.8	12.9	17.6	28.2
<i>I-580 Westbound</i>					
• Portola to Tassajara	52.3	65.5	43.5	41.9	32.4
• Tassajara to I-680	53.8	58.9	60.6	63.8	44.0

Source: Alameda County CMA, *LOS Monitoring Report*, 2002

* The speeds calculated as part of the Congestion Monitoring Program appear high. Work conducted for the I-680 Traffic Operations Study indicates an average speed for the entire I-680 corridor of 25 mph.

Table 5 — Comparative Travel Times for Origin/Destination Pairs in the Afternoon Peak (minutes)

Pair Description	1996	1998	2000	2002
Pair 1: Kaiser, Hayward to Newark Boulevard, Newark	Auto-19 Transit-68	Auto-24 Transit-88	Auto-22 Transit-92	Auto-22 Transit-79
Pair 2: Chiron Emeryville to Marin Circle, Berkeley	Auto-23 Transit-48 Bicycle-34	Auto-25 Transit-61 Bicycle-33	Auto-26 Transit-NA Bicycle-30	Auto-25 Transit-56 Bicycle-30
Pair 3: CSU, Hayward to N. Livermore, Livermore	Auto-54 Transit-142	Auto-53 Transit-144	Auto-45 Transit-152	Auto-49 Transit-141
Pair 4: Downtown Oakland to Chapel Ave., San Leandro	Auto-38 Transit-46	Auto-35 Transit-74	Auto-29 Transit-64	Auto-32 Transit-56
Pair 5: NUMMI Plant, Fremont to Greenwood Road, Pleasanton	Auto-34 Transit-115	Auto-31 Transit-130	Auto-34 Transit-122	Auto-33 Transit-125
<i>The following pairs were added in 1998</i>				
Pair 6: Fremont from Thornton Avenue/Fremont Boulevard to Hitachi in San Jose	Pair not included	Auto-39 Transit-129	Auto-55 Transit-104	Auto-49 Transit-118
Pair 7: Fremont to San Jose HOV Lane (future Transit Service to be added when facilities are in place)	Pair not included	Pair not included	Auto-35 Transit-NA	Auto-34 Transit-NA
Pair 8: Oakland, from Federal Bldg. to Hopyard and Valley in Pleasanton	Pair not included	Auto-58 Transit-81	Auto-60 Transit-96	Auto-60 Transit-70
Pair 9: Fremont, Washington Hospital to Searidge in Alameda	Pair not included	Auto-50 Transit-86	Auto-57 Transit-74	Auto-53 Transit 70
Pair 10: Alameda Naval Air Station to College Ave. in Oakland	Pair not included	Auto-21 Transit-51	Auto-17 Transit-47	Auto-21 Transit-45

Source: Alameda County CMA, *LOS Monitoring Reports*, 1996-2002

Note: The difference in travel time for transit may be due to a difference in the methodologies used by two different surveyors. These trips will be closely monitored in the future.

Alameda County Congestion Management Agency

Table 6 — Total Daily* Delay on Freeways (in vehicle hours of delay)

Year	Total Hours	% change from previous year
1996	35,400	38.3
1998	41,800	+18.1
1999	44,300	+6.0
2000	61,700	+39.3
2001	65,600	+6.3
2002	61,300	-6.6

Source: Caltrans District 4, congestion monitoring information.

Notes:

Data was not collected in 1997.

Does not include delay occurring on weekends.

Table 7 — Top 10 Congested Corridors in Alameda County: 2000, 2001,2002

2000				2001				2002			
rank	segment	time	vhd	rank	segment	time	vhd	rank	segment	time	vhd
1	WB I-80: Rt 4 to Bay Bridge	AM	10,340	1	WB I-80: Rt 4 to Bay Bridge	AM	9,410	1	WB I-80: Willow Avenue to Bay Bridge	AM	9,710
2	SB I-680: Sunol Rd to Rt 262	AM	8,880	2	SB I-880: Thornton to Mowry/Stevenson to Dixon Landing Road	AM	8,880	2	SB I-880: Thornton to Mowry/Stevenson to Dixon Landing Road	AM	8,880
3	SB I-880: Rt 84 to Dixon Landing Road	AM	8,210	3	SB I-680: Bernal/Sunol to Rt 262	AM	8,510	3	EB I-580: Hopyard to El Charro	PM	7,040
4	EB Rt 92 San Mateo to I-880	PM	4,230	4	EB I-580: Hopyard to El Charro	PM	5,030	4	WB I-580: Vasco to Airway	AM	3,910
5	NB I-880: W. Grand to Bay Bridge Toll Plaza	AM	3,380	5	NB I-880: 1 mile north of 7th to Bay Bridge	AM	2,920	5	SB I-680: Sunol to Rt 262	AM	3,600
6	WB Rt 84: I-880 to Dumbarton Bridge Toll Plaza	AM	3,180	6	SB Rt 84: Newark to Dumbarton Toll Plaza	AM	2,860	6	SB Rt 84: Newark to Dumbarton Toll Plaza	AM	2,860
7	EB I-580: Hopyard to El Charro	PM	2,930	7***	EB Rt 92: 1.5 miles east of San Mateo Bridge to I- 880	PM	2,760	7	EB I-80: I-580 to Gilman	PM	2,520
8	WB I-580: Vasco Road to Portola	AM	2,830	8	WB I-580: Vasco to Airway	AM	2,745	8	NB I-880: Fremont to Tennyson	PM	2,360
9*	WB Rt 92: I-880 to San Mateo Bridge Toll Plaza	AM	2,680	9	EB I-80: I-580 to Gilman	PM	2,500	9	NB I-880: 1/4 mile s/o HOV off-ramp to Bay Bridge Toll	AM	2,190
10**	SB I-880: Washington to SR 92	AM	2,100	10	NB I-880: Fremont to Tennyson	PM	2,120	10	EB SR 24: SR 13 to Tunnel	AM	1,270

* WB Rt 92 in the AM moved to # 11 in 2001 with 1,910 vhd SB I-880 in the AM moved to #18 in 2001 with

** 1,220 vhd

*** EB Rt. 92 in the PM moved to # 11 in 2002 with 1,180 vhd

Source: Caltrans Highway Congestion Monitoring Data: 2000, 2001, 2002

Alameda County Congestion Management Agency

2002-2003 PERFORMANCE REPORT

December 18, 2003

Page 12

Table 8 — Top 10 Congested Corridors in Alameda County: 2000, 2001, 2002

2000				2001				2002			
rank	segment	time	duration	rank	segment	time	duration	rank	segment	time	duration
1	WB I-80: Rt 4 to Bay Bridge	AM	05:25 - 10:15	1	WB I-80: Rt 4 to Bay Bridge	AM	05:45- 09:30	1	WB I-80: Willow Avenue to Bay Bridge	AM	05:45- 09:30
2	SB I-680: Sunol Rd to Rt 262	AM	05:20 - 10:30	2	SB I-880: Thorntom to Mowry/Stevenson to Dixon Landing Road	AM	06:00- 10:45	2	SB I-880: Thornton to Mowry/Stevenson to Dixon Landing Road	AM	06:00- 10:45
3	SB I-880: Rt 84 to Dixon Landing Road	AM	05:50 - 10:20	3	SB I-680: Bemal/Sunol to Rt 262	AM	05:55- 10:45	3	EB I-580: Hopyard to El Charro	PM	14:55 - 18:40
4	EB Rt 92: SanMateo to I-880	PM	14:45 - 18:00	4	EB I-580: Hopyard to El Charro	PM	14:55- 18:40	4	WB I-580: Vasco to Airway	AM	06:15 - 08:30
5	NB I-880: W. Grand to Bay Bridge Toll Plaza	AM	05:35 - 10:05	5	NB I-880: 1 mile north of 7th to Bay Bridge	AM	05:45- 09:35	5	SB I-680: Sunol to Rt 262	AM	05:55- 10:45
6	WB Rt 84: I-880 to Dumbarton Bridge Toll Plza	AM	05:45 - 09:45	6	SB Rt 84: Newark to Dumbarton Toll Plaza	AM	05:30- 09:50	6	SB Rt 84: Newark to Dumbarton Toll Plaza	AM	05:30- 09:50
7	EB I-580: Hopyard to El Charro	PM	15:10 - 18:45	7***	EB Rt 92: 1.5 miles east of San Mateo Br to Rt 880	PM	14:30- 19:00	7	EB I-80: I-580 to Gilman	PM	15:05 - 19:00
8	WB I-580: Vasco Road to Portola	AM	06:20 - 08:30	8	WB I-580: Vasco to Airway	AM	06:15- 09:30	8	NB I-880: Fremont to Tennyson	PM	15:00 - 18:30
9*	WB Rt 92: I-880 to San Mateo Bridge Toll Plaza	AM	05:30 - 09:50	9	EB I-80: I-580 to Gilman	PM	15:10- 18:55	9	NB I-880: 1/4 mile s/o HOV off- ramp to Bay Bridge toll	AM	06:20- 09:30
10**	SB I-880: Washington to SR 92	AM	06:20 - 09:35	10	NB I-880: Fremont to Tennyson	PM	15:00- 18:50	10	EB SR 24 SR 13 to Tunnel	AM	06:30- 09:45

Source: Caltrans Highway Congestion Monitoring Data: 2000, 2001, 2002

* WB Rt 92 in the AM moved to #11 in 2001 with 1,910 vhd

** SB I-880 in the AM moved to #18 in 2001 with 1,220 vhd

*** EB Rt. 92 in the PM moved to #11 in 2002 with 1,180 vhd

Duration of Congestion in the Top 10

The Highway Congestion Monitoring information also provides additional data on the duration of congestion for each freeway. An increase in vehicle hours of delay, without a geographic change in congestion, generally results in an increase in the duration of congestion. For example, congestion on I-580 between Hopyard and El Charro increased 72 percent or 2,100 VHD in 2001. Table 8 shows that this increase added 20 minutes to the morning peak period. However, the reverse can also occur, where vehicle hours of delay increase and the duration of congestion remains the same. This occurs because of geographic changes on the segment (the congested corridor lengthens), roadway improvements are implemented and more vehicles can be accommodated, or speeds actually increase during the peak hour allowing the duration of the peak period to remain the same. For example, Table 8 shows that in the same location in 2002, I-580 between Hopyard and El Charro, there was an increase in VHD of 40 percent without a corresponding change in the duration of congestion. In this case, the auxiliary lanes were opened.

Table 8 compares the duration of congestion for the Top 10 congested locations in Alameda County for the years 2000, 2001, and 2002. The duration of congestion varied throughout the County, not substantially different from 2001. The following segment reported an increase in the length of daily congestion:

- I-80 eastbound in the afternoon — 10 minutes longer

All other segments had the same duration of congestion as 2001.

Road Maintenance

Local Jurisdictions

All 15 jurisdictions in Alameda County use the Pavement Condition Index (PCI) or similar index to rate the "health" of local streets. An average index indicates the general pavement condition within a defined network. Last year, MTC modified the PCI ranges as part of an effort to make the pavement condition database more accurate, reliable and consistent. The revised ranges along with ranges used in previous years are presented in Table 9 by category.

The revised Good Condition, with a minimum range of 60, results in a higher number of roadways that were Fair and are now Good. The revised Fair Condition (previously labeled Satisfactory), now has a lower threshold than the previous category for both the minimum and the maximum ranges and the Poor Condition (previously Fair) has the same minimum range, but a lower maximum. The Very Poor, previously Poor Condition remains the same and is directly comparable to data presented in previous years.

Alameda County Congestion Management Agency

Table 9 — Rating of Pavement Condition

Condition Category	PCI Range (pre-2002)	Revised PCI Range
Good Condition	PCI of 70-100	PCI of 60-74
Fair Condition	PCI of 50-69	PCI of 45-59
Poor Condition	PCI of 25-49	PCI of 25-44
Very Poor Condition	PCI below 25	PCI below 25

Source: MTC, Pavement Management System. Prior to 2002, the Fair, Poor, and Very Poor Conditions were called Satisfactory, Fair, and Poor.

Table 10 shows the number of centerline miles for all roadway types (arterials, collectors, and residential) in each of the condition categories. Approximately 70.4 percent of the all roadways were reported to be in good condition in 2002. Direct comparisons can be made only for the Very Poor Condition Category, which has decreased by approximately 4 percent since 2000.

Table 10 — Pavement Condition in Local Alameda County Jurisdictions

Condition Category	% of Centerline Miles within Category			
	1996	1998	2000	2002
Good	54	55.7	53.8	70.4
Satisfactory	25.9	22.8	24.7	12.8
Fair	15.1	15.9	12.7	11.6
Poor	5	5.6	8.9	5.2

Source: MTC, Pavement Management System and cities of Oakland and Union City.

Note: Not all jurisdictions reported data for all years.

State Facilities

Caltrans is responsible for maintaining the freeways and state highway system. Under the state system, assessment of pavement condition differs from the Pavement Condition Index. Since 1999, the types of ride (i.e., rough ride) and structural problems have been monitored in the State. The combination of these two factors is the initial step in determining if a segment should be scheduled for improvement.

As required by SB 45, Caltrans has prepared a 10-year plan for maintenance of state highways and freeways. The plan identifies roads in need of rehabilitation and a schedule for completing the work. The goals of the program are to:

- Reduce the lane mile backlog of pavement in poor condition,;
- Switch from a "worst-first" to "preventive maintenance" strategy;
- Use long life pavement strategies; and Integrate maintenance and
- rehabilitation work.

The 2002 survey of State facilities showed that 236 lane miles of freeway and state facilities were in need of rehabilitation. The number of lane miles by route in Alameda County is shown in Table 11.

Table 11 — State facility lane miles in need of rehabilitation in Alameda County

State Facility	Lane Miles in Need of Rehabilitation
Highway 13	13.5
Highway 24	4.6
Route 61	2.4
Route 84 (Dumbarton Bridge)	23.2
Route 92 (San Mateo Bridge)	5.4
Route 112	5.9
Route 123	17.8
Route 185	23.4
Interstate 238	0.9
Route 260	3.8
Route 262	2.1
Interstate 580	54.0
Interstate 680	45.1
Interstate 880	12.5
Total	214.6

Source: Caltrans, District 4

Accident Rates

As shown in Table 12, the accident rate for state freeways decreased on all but two of the freeways in Alameda County. Accident rates rose on Route 24 and I-980.

Table 12 — Accident Data for State Freeways in Alameda County

Freeway	Route Length	Total Number of Accidents				Accidents/Million Vehicle Miles *				Statewide Average for Similar Facility
		1996	1998	2000	2002	1996	1998	2000	2002	
Highway 13	5.359	124	149	128	108	1.27	1.43	1.11	0.93	0.97
Highway 24	4.394	259	274	263	322	1.24	1.29	1.17	1.43	0.93
Interstate 80	6.652	916	1252	1264	1224	1.80	2.61	2.30	2.23	1.10
Route 84 (Dumbarton Bridge)	2.807	90	118	168	93	1.75	1.82	2.20	1.22	0.96
Route 92 (San Mateo Bridge)	3.821	236	207	288	210	1.21	1.63	2.22	1.62	1.25
Interstate 238	1.757	153	137	159	143	1.81	1.98	2.27	2.05	0.97
Interstate 580	53.965	2,117	2296	2510	2488	0.80	0.87	0.93	0.89	0.84
Interstate 680	21.482	619	698	838	669	0.73	0.75	0.83	0.66	0.97
Interstate 880	36.74	2,874	3185	4063	3565	1.38	0.98	1.65	1.40	1.07
Interstate 980	2.027	175	129	57	71	1.35	0.95	0.74	0.92	0.83

Source: Caltrans, District 4

* Rate based on number of fatal and injury accidents per million vehicle miles.

3 — TRANSIT

Transit Operators

Six operators provide transit service in Alameda County: BART, AC Transit, LA VTA, Union City Transit, ACE Commuter Rail, Alameda-Oakland Ferry Service and Harbor Bay Ferry Service.

BART

The BART system provides rail transit service in Alameda as well as Contra Costa and San Francisco and the northern portion of San Mateo County. Approximately half of the current weekday ridership involves travel between the East and West Bays.

BART overview for Fiscal Year 2001 -2002 (FY 2001-02):

- Average miles per trip, systemwide: 13
- Number stations: 39 stations total, including 19 stations in Alameda County
- Weekday service
 - Number of Weekday routes: 5
 - Weekday headways: 15 minutes or more frequent during peak periods
- •Evening service
 - Number of routes: 3
 - Headways: 20 minutes

The average age of a rail car was 6.8 years in 2002. This age is lower than the 20.0 year average age in FY 2001 because many cars were rehabilitated in 2002. When cars are rehabilitated, their age gets reset to zero. The average life expectancy of a car was 20 to 25 years for new cars and 15 years for rehabilitated cars.

AC Transit

AC Transit operates two main types of bus service: East Bay local service and TransBay service, as well as the joint Dumbarton service with Union City and Palo Alto.

East Bay local service offers local stop service within the AC Transit service area (most of Alameda County and West Contra Costa County), including supplemental school service offered during the school months and community based service that provides sporadic and direct mid-day service from community centers to shopping and other services.

TransBay service operates from East Bay to the TransBay Terminal in downtown San Francisco.

Dumbarton Route (DB Route) AC Transit also participates in a jointly funded Dumbarton (DB) route operated by a private operator across the Dumbarton Bridge between Union City and Palo Alto.

AC Transit operated the following routes in FY 2002:

- 91 East Bay local routes
- 4 East Bay limited routes
- 3 East Bay express routes
- 5 Community Service routes
- 6 Welfare to Work routes
- 36 TransBay routes including their distinct derivations

The average age of the AC Transit bus fleet in FY 2002 was 10 years and the life expectancy for buses was 12 years.

LAVTA

Livermore Amador Valley Transit Authority (LAVTA) provides:

- Local service to the cities of Dublin, Livermore and Pleasanton and to the adjacent unincorporated areas of Alameda County,
- WHEELS dial-a-ride, an ADA-mandated demand responsive service to elderly and disabled persons in Dublin, Pleasanton and Livermore
- "DART", a general public demand responsive service during off-peak hours and non-weekdays, with one or two fixed time points,
- Limited fixed-route express bus service to Pleasant Hill,
- School service, and
- Subscription service connects the area with Intel in Santa Clara and Lockheed Martin in Sunnyvale.

LAVTA's active fleet in FY 2002 follows: •

Routes:

- 75 fixed route buses, including 9 subscription buses, and
- 18 demand responsive DART/paratransit vehicles.

Service:

- Weekdays: 4:30 a.m. 12:30 a.m., with reduced service hours on weekends.
- Headways during peak periods: 15 to 60 minutes depending on the route.

Union City Transit

Union City Transit provides fixed route and paratransit services within the city limits of Union City. Currently, Union City Transit contracts with MT Transportation for operations and maintenance. Union City Transit offers the following services:

Service hours:

- Weekdays: 4.15 a.m. to 9.20 p.m.,
- Saturdays: 7:00 a.m. to 7:30 p.m.
- Sundays: 7:00 a.m. to 6:30 p.m.

Active fleet:

- Fixed route buses: 17
- Paratransit vehicles: 5

Union City Transit coordinates its service with AC Transit, BART, and the Dumbarton Express bus.

Alameda/Oakland Ferry

Alameda/Oakland Ferry provides service between San Francisco's Ferry Building, San Francisco's Pier 39, Alameda's Main Street terminal and Oakland's Jack London Square. The City of Alameda and the Port of Oakland operate the service. Weekday service includes eleven commute and four midday departures. Service hours are 6 AM to 9:30 PM with 30-minute headways during the peak period. Weekend schedules vary seasonally with nine departures per day during the summer. Seasonal service is offered from Alameda and Oakland to Angel Island State Park and PacBell Park.

Alameda Harbor Bay Ferry

Alameda Harbor Bay Ferry provides passenger ferry service between Alameda's Bay Farm Island and the San Francisco Ferry Building. Weekday service consists of three morning and four evening commute period trips.

ACE Commuter Rail

ACE Commuter Rail provides service between Stockton and San Jose during the weekday morning and evening commute periods only. The service operates three round trips per day running approximately one every hour between the commute hours of 4:15 a.m. and 8:56 a.m. and 6:42 p.m. and 8:53 p.m. There are four stations in Alameda County: Fremont, Pleasanton, Livermore and Vasco Road.

Routing

Routing is used to determine how many passengers are being served by transit systemwide. To do this, three measures are used: how much surface (roadway or trackway) is covered by transit (directional route miles), the amount and intensity of service provided on that surface area (total vehicle miles/directional route miles), and total passengers.

While transit service has varied year to year, overall more transit service is being provided (e.g., more frequent headways, more routes, more route miles) and more people are being served since FY 1993/94.

Table 13 shows that between fiscal years 1993/94 and 2001/02, systemwide routing changes include:

- Surface miles covered by transit: Increased by 21 percent (1495 miles to 1,811 miles)
- Amount of transit service provided: Increased by **28** percent
- Total passengers served: Increased by 17 percent

Alameda County Congestion Management Agency

Compared to last year, systemwide routing changes include:

- Surface miles covered by transit: Increased by 4 percent (1,722 to 1,766 directional route miles),
- Amount of transit service provided: Decreased by 0.02 percent
- Systemwide passenger boardings: Decreased by 3.0 percent

Table 13 - Transit Routing¹ within Alameda County

Measure ²	93/94	95/96	97/98	98/99	99/00	00/01	01/02
Directional Route Miles ³	1,495	1,375	1,527	1,685	1,706	1,722	1,811
Service Coverage (000) ⁴	284.1	346.1	335.3	334.2	353.5	363.0	362.9
Total Annual Systemwide Passenger Boardings (000)	82,963	84,073	85,218	88,688	93,159	99,754	96,474

Notes:

1 Source: Statistical Summary of Bay Area Transit Operators, Metropolitan Transportation Commission, October 2001. 2001/02 data is provided by the transit operators by special request.

2 The summary totals include data from all transit operators in Alameda County: AC Transit, Union City Transit, LAVTA, ACE and BART. See Appendix C tables for a breakdown by operator.

3 A measure of surface area (roadway and trackway) served. For example, a one-mile segment of road over which transit operates in both directions would be reported as 2 miles, while a one-mile segment traversed by vehicles six times in the same direction would be counted as one-mile.

4 Total Vehicle Miles/Directional Route Miles. A measure of the amount of service provided, including number of routes and frequency, on the transit system. For instance, a one-mile segment traversed by vehicles six times in the same direction would be counted as six-miles.

For FY 2001/02, all transit operators except the Alameda-Harbor Bay Ferry experienced decreases in ridership through June 2002 compared to the previous fiscal year. Ridership on the Alameda-Harbor Bay Ferry remained the same. Ridership began to decline dramatically in July 2001, although BART began to experience it as early as March 2001. This downward trend continued into FY 2001/02. Historical data by operator is shown in Appendix C.

LAVTA made a strategic decision to reduce their service to focus on the most productive lines in response to the downward economic trend in 2002, while AC Transit made minor modifications to their service routes to improve on time performance. These measures may have minimized further declines in their ridership.

By transit operator, the systemwide service decreases over the last year are as follows (see Appendix C for more detail):

- AC Transit: -2.43 percent
- BART: -6.2 percent
- LAVTA: -7.95 percent Union City
- Transit: -14.05 percent ACE
- Commuter Rail: -12.42 percent

With the exception of the past year and a one percent dip in 1994, over the past decade, transit service has grown. New transit service in south and east county as well as additional in transit service in north county, particularly the addition of ACE Commuter Rail in 1998 and the extension of BART to Dublin-Pleasanton in 1997, have contributed to this growth.

Frequency

Frequency is measured by how often transit service is provided by route. Information is provided in Table 14 primarily for the peak commute hours, but frequency data for the midday and evening periods is also shown. Service hours vary by operator (i.e., LAVTA - 5:00 a.m. to 1:00 a.m., Union City Transit - 6:00 a.m. to 8:00 p.m., AC Transit - 5:00 a.m. to 12:00 a.m.¹, BART 4:00 a.m. to 1:00 a.m.). Data presented are for activity through FY 2001/02.

Changes in service are primarily due to changes in service by AC Transit and LAVTA. For AC Transit, these changes include schedule adjustment to improve on-time performance, minor route adjustments, implementation of additional LIFT services in Hayward, and one additional line during the weekends in Fremont. For LAVTA, service changes include reducing service to focus on productive routes.

For bus service, Table 14 shows the number of bus routes in Alameda County by arrival rate or headways. Overall, more frequent service is being provided compared to 95/96 conditions (the first year for which data was collected), particularly in the evening periods. In the past year, the total number of peak service routes decreased but the percent frequency of these services has stayed about the same, while the percentage of midday and evening services has increased.

¹ While the majority of routes were in service between the hours of 5:00 a.m. to 12:00 a.m., some of the routes either a) started at 4 a.m., b) ran 24 hours or c) ran only during the late evening/early morning

Table 14 - Transit Service Frequency

Headways (min.)/Direction	Peak Hours							Midday							Evening						
BUS	NUMBER OF ROUTES																				
	95/ 96	96/ 97	97/ 98	98/ 99	99/ 00	00/ 01	01/ 02	95/ 96	96/ 97	97/ 98	98/ 99	99/ 00	00/ 01	01/ 02	95/ 96	96/ 97	97/ 98	98/ 99	99/ 00	00/ 01	01/ 02
6-15	54	54	51	43	44	43	39 ²	9	9	9	10	8	10	10	3	3	9	1	1	2	10
16-25	10	10	23	16	15	12	19	7	7	7	8	9	8	6	6	6	7	5	6	7	15
30-40	58	71	68		77	78	63	60	60	60	60	62	61	56	37	37	60	47	49	53	49
45-60	0	7	8	14	15	13	7	13	13	13	28	25	19	15	3	3	13	39	20	22	17
90	--	--	--	1	1	3	1	--	--	--	1	2	4	3	--	--	--	1	2	1	2
Total	122	142	150	155	152	149	129	89	89	89	107	106	102	90	49	49	89	93	78	85	93
BART	NUMBER OF STATIONS																				
2.5-7	4	4	6	6	6	6	6	4	4	6	6	6	6	6	4	4	0	0	0	0	0
7-15	13	12	11	11	11	11	11	12	12	13	13	13	13	13	12	12	6	6	6	6	6
15-18	--	2	2	2	2	2	2	1	1	4	4	4	4	4	1	1	13	13	13	13	13
AMTRAK/CAP-ITAL CORRIDOR	NUMBER OF TRAINS																				
Eastbound	2	2	3	2	3	2	4	1	1	2	2	3	4		1	1	1	1	1	2	
Westbound	1	1	2	2	2	4	4	2	2	3	3	4	3		1	1	3	1	1	2	
ACE	NUMBER OF TRAINS (Peak Period Service only)																				
Eastbound	N/A	N/A	N/A	2	3	3	3														
Westbound	N/A	N/A	N/A	2	3	3	3														

Source:

Transit agency staff, 2003.

² Bus figures are for AC Transit.

Notes:

1. Peak hour service is defined as 7:00 a.m. to 9:00 a.m. and 4:00 p.m. and 6:00 p.m.
2. Midday service is defined as 9:00 a.m. to 4:00 p.m.
3. Service hours vary by operator (i.e., LA VTA - 4:30 a.m. to 12:30 a.m., Union City Transit - 4:15 a.m. to 9:20 p.m., AC Transit - 6:00 a.m. to 12:00 a.m., BART 4:00 a.m. to 1:00 a.m.).
4. BART has 19 stations in Alameda County: Fremont, Union City, South Hayward, Hayward, Bayfair, San Leandro, Coliseum/Oakland Airport, Fruitvale, Lake Merritt, Oakland City Center/12th Street, 19th Street, MacArthur, Rockridge, Ashby, Berkeley, North Berkeley, West Oakland, Castro Valley and Dublin/Pleasanton.
5. Three BART stations (MacArthur, 19th Street, and 12^{*} Street) are served by 3 lines (Bay Point-Daly City/Colma, Richmond-Daly City/Colma, Richmond-Fremont) while one station (West Oakland) is served by 4 lines (Pittsburg/Bay Point-Daly City/Colma, Richmond-Fremont, Fremont-Daly City, and Dublin/Pleasanton-Daly City).
6. Each of the four BART lines that use the TransBay Tube (Pittsburg/Bay Point-Daly City/Colma, Richmond-Daly City/Colma, Dublin/Pleasanton-Daly City, and Fremont-Daly City) operate with 15 minute headways during the day, except for the Pittsburg/Bay Point-Daly City/Colma line which operates with as short as 5 minute headways during the peak hours and 15 minute headways midday. Two lines operate in the evening with 20 minute headways.
7. AMTRAK has 5 stations in Alameda County: Fremont-Centerville, Hayward, Oakland, Emeryville, and Berkeley.
8. ACE has four stations in Alameda County: Fremont, Pleasanton, Livermore, Vasco.

During the peak commute hours, 93 percent of Alameda County bus routes (IT routes) arrive every 40 minutes or less and 30 percent (39 routes) arrive every 15 minutes or less. This represents a slight increase in 40-minute service compared to the previous year (by four routes) and a decrease in 15-minute service by four routes. During the midday and evening periods, 80 and 79 percent of Alameda County bus routes (72 and 74 routes, respectively) arrive every 40 minutes or less. This represents an increase in 40-minute midday and evening service by seven routes in the midday and eight routes in the evening periods.

BART serves 19 Alameda County stations. Depending on the trip origin or destination, service is provided every 2 V_2 to 15 minutes during the peak commute periods. Three transfer points at MacArthur, 12th Street, and Bay Fair Stations provide transfers between BART lines. Again, depending on the trip origin or destination, BART service is provided every 2 14 to 20 minutes during the mid-day and evening periods.

Twelve Amtrak Capitol Corridor daily round trip trains (24 trains, 12 eastbound and 12 westbound) serve Alameda County Amtrak stations located in Berkeley, Emeryville, Oakland, with four daily-round trips south of Oakland to serve Hayward and Fremont-Centerville. During the peak commute hours, six trains pass through Alameda County, three eastbound and westbound in each of the morning and evening peak periods. A direct connection is provided with BART at the Richmond Station.

Three round trip Altamont Commuter Express (ACE) trains (6 trains, 3 westbound from Stockton to San Jose in the morning peak period and 3 eastbound from San Jose to Stockton in the evening period) serve Alameda County. Service began in October 1998 and four stations are located in Alameda County: Vasco Road, Livermore Transit Center, Pleasanton, and Fremont.

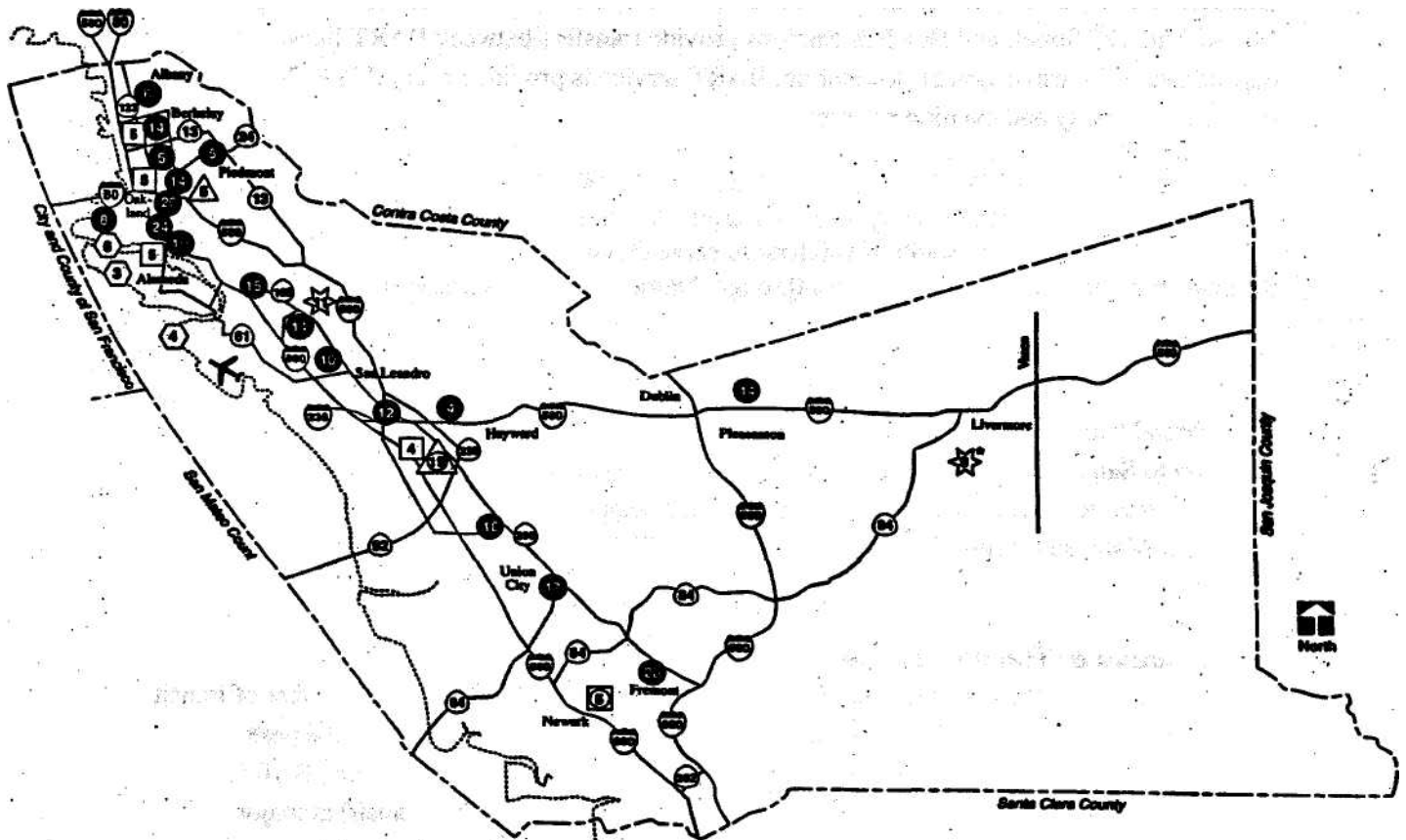
Coordination of Transit Service

In order to measure the coordination of transit service in Alameda County, the number of transit routes serving major Alameda County transportation terminals was counted for the peak commute period as of June 2001. Figure 2 shows the number of transit lines (i.e., BART, AirBART, AC Transit, Union City Transit, LAVTA, ACE, Santa Clara Transit) at major transportation terminals in Alameda County, including BART, AMTRAK and ACE stations, the Dublin and Livermore Transit Centers, Greyhound, and the Oakland and Alameda ferry terminals.

In 1997, several new transportation terminals were added to the system:

- Castro Valley BART station,
- Dublin/Pleasanton BART station,
- Livermore Transit Center, and
- Hayward AMTRAK station.

Figure 2 - Transit Lines Serving Major Alameda County Transportation Terminals



LEGEND

- ② ACE Station
- 19 14 BART
- 11 AMTRAK
- ★ Transit Center
- △ Greyhound
- 6 Ferry

* Livermore Transit Center includes ACE Station and Greyhound

Source: AC Transit Street and Route Map, September 2001; Wheels Route Map & Schedule, August 26, 2001; BART a Buses: A Guide to Public Transportation from BART, June 200V Greyhound.com; The Capitol Corridor Amtrak California Timetable, April 2001.

In October 1998, the ACE trains began operating service between Stockton and San Jose in the morning and afternoon peak periods. The downtown Livermore ACE station, as well as LA VTA and ACE are at the Livermore Transit Center.

LA VTA and AC Transit previously restructured service to accommodate the ACE schedule at the four Alameda County Stations (i.e., Vasco, Livermore Transit Center, Pleasanton, and Fremont). However, LAVTA discontinued service to the Vasco ACE station in FY 2001/02 due to low rider ship.

In FY 2001/02, AC Transit made minor adjustments to their schedules to improve on-time performance. They also added one line in Fremont during the weekends and Welfare to Work, "LIFT" route that provides feeder service to the Hayward BART station.

The greatest number of transfer opportunities is found predominantly at BART stations: Fremont (20 lines), Hayward (19 lines), Union City (17 lines), 12th Street (24 lines), 19th Street (20 lines). In addition, in 2002, a new platform was constructed in Richmond that provided an improved connection between BART and Amtrak Capitol Corridor. No new terminals were added in 2002.

Ridership

Transit ridership can be reported in a number of ways. For purposes of this report ridership is provided as:

- Systemwide Passenger Boardings,
- Passenger Boardings per Revenue Vehicle Mile, and
- Passenger Boardings per Revenue Vehicle Hour.

In order to provide a context for the patronage figures, ridership is included for operators who provide service to Alameda County and those who provide service to other parts of the Bay Area as well as the total Bay Area system. Systemwide Passenger Boardings are shown in Table 15.

In the last year, the total annual systemwide passenger boardings for Alameda County transit operators have decreased from 178,845,000 systemwide passenger boardings in FY 2000/01 to 169,897,000 in FY 2001/02, a 5 percent decrease. However, since FY 1993/94, the number of passenger boardings has increased 20 percent. For FY 2001/02, transit operators continued to experience decreases in ridership through June 2002. According to the transit operators, ridership growth began to decline dramatically in July 2001, although it was starting to slow for BART as early as March 2001. This downward trend continued into Fiscal Year 2001/02.

Table 15 - Total Annual Systemwide Passenger Boardings (in 000's)

Operator	93/94	95/96	97/98	98/99	99/00	00/01	01/02
AC Transit	62,591	64,153	63,290	65,668	67,400	70,573	68,859
BART (Rail Only)	77,843	77,114	80,528	86,180	97,228	103,919	97,146
LAVTA	858	981	1,433	1,594	1,836	2,201	2,037
Union City	421	472	525	493	505	920	477
ACE	NA	NA	NA	266.4	526	920	804
Alameda-Oakland Ferry	275.7	383.8	499.2	477.3	549	519	444
Alameda Harbor Bay Ferry	92	104.1	86	106.6	128	130	130
Total	142,081	143,208	146,361	154,785	168,172	178,819	169,897
Non-Alameda Co. Operators							
CCCTA	4,570	4,081	4,173	4,420	4,572	9,925	NA
SF Muni							NA
Motor Bus	93,994	89,896	92,845	92,978	96,394	NA	NA
Trolley Bus	78,752	77,807	77,463	78,275	78,461	NA	NA
Light Rail	37,615	36,728	38,898	35,660	41,610	NA	NA
SAM Trans	19,598	18,900	18,649	18,162	17,729	18,136	NA
SCVTA-Bus	38,737	42,625	46,118	47,487	47,008	NA	NA
SCVTA-Rail	6,142	6,168	6900	6863	7914	NA	NA
Bay Area System	457,656	455,325	470,991	478,233	501,684	NA	NA
Source: MTC, Statistical Summary of Bay Area Transit Operators October 2001. FY 2001/02 data is provided by the transit operators by special request.							

Alameda County Congestion Management Agency

The 2001/2002 statistics are affected by the following service changes:

- LA VTA: Strategically reduced service to remove unproductive service.
- AC Transit: AC Transit made minor adjustments to schedules to improve on-time performance, made minor routing adjustments, implemented a LIFT service in Hayward, and added one more line during the week-ends in Fremont.
- BART: No new service changes.
- ACE: No new service changes. Third roundtrip between the Central Valley and San Jose was initiated the previous fiscal year, on March 5th, 2001.
- Ferries: No service changes.
- UC Transit: No service changes.

Passenger Boardings per Revenue Vehicle Mile

Passenger Boardings per Revenue Mile, shown in Table 16, is the number of passengers divided by the number of miles the transit vehicle is in revenue service. The measure excludes miles traveled to and from storage facilities and other deadhead travel.

AC Transit experienced an increase in revenue miles and hours for FY 2001/02 due to the previous changes made in Fremont and Newark in December 2000, improvements to weekend service, new Hayward LIFT service, and various routing adjustments. However, ridership declined during this same time period, causing a decrease in passengers per revenue mile. The change in ridership can likely be attributed to a loss of jobs during the economic downturn.

In the last year, even with strategic reductions in service by LA VTA and minor route adjustments by AC Transit, passenger boardings per revenue mile for Alameda County transit operators have decreased about 29 percent from 33.5 passenger boardings per revenue mile to 23.9. This trend is a reflection of the downturn in the economy.

Table 16 - Transit Service by Total Annual Systemwide Passenger Boardings
(per revenue vehicle mile)

Operator		93/94	97/98	98/99	99/00	00/01	01/02
AC Transit	2.7	2.9	3.3	3.3	2.7	3.1	3
BART (Rail Only)	1.8	1.7	1.5	1.6	1.7	1.8	1.7
LAVTA	0.7	0.9	0.9	1	1.03	1.16	1.04
Union City	1.2	1.1	1.2	1.1	1.04	1.11	1.05
ACE	NA	NA	NA	0.55	1.19	1.55	1.09
Alameda-Oakland Ferry	5.5	7.3	7.6	10.6	12.2	11.6	9.7
Alameda Harbor Bay Ferry	NA	3.3	4.2	5.4	6.5	6.3	6.32
Totals	11.9	17.2	18.7	23.55	30.33	33.45	23.91
Non-Alameda Co. Operators							
CCCTA	1.3	1.2	1.3	1.3	1.3	NA	NA
SF Muni							NA
- Motor Bus	7.4	7.5	7.5	7.5	7.8	NA	NA
- Trolley Bus	11	11	11.3	11.1	11.1	NA	NA
- Light Rail	10.4	9.9	10.3	8.9	9.6	NA	NA
SAM Trans	2.5	2.4	2.1	2.4	2.2	NA	NA
SCTVA-Bus	2.3	2.5	2.6	2.5	2.5	NA	NA
SCTVA-Rail	3.6	3.3	3.3	3.1	3.3	NA	NA
Bay Area System	NA	3.2	3.1	3.1	3.1	NA	NA

Source: MTC, Statistical Summary of Bay Area Transit Operators, October 2001. FY 2000/01 data is provided by the transit operators by special request.

Passenger Boardings per Revenue Vehicle Hour

Passenger Boardings per Revenue Vehicle Hour (RVH), as shown in Table 17, is the number of passengers per the total number of hours that each transit vehicle is in revenue service, including layover time. The measure excludes hours consumed while traveling to and from storage facilities and during other deadhead travel. The data for the nine-year period is relatively consistent for AC Transit, BART, and UC Transit and shows substantial increase for LAVTA, ACE and the ferries as a result of adding service or starting a new system in the case of ACE and the Alameda Harbor Bay Ferry. In the last year, however, passenger boardings per revenue

vehicle hour for Alameda County transit operators have reduced 16 percent from 371 boardings per hour to 311 boardings per hour. This reflects a downturn in the economy during the FY 2001/02 fiscal year.

Table 17 - Total Annual Systemwide Passenger Boardings (per revenue vehicle hour)

Operator	93/94	95/96	97/98	98/99	99/00	00/01	01/02
AC Transit	34.2	36.2	38.7	39.7	37.4	36.3	34.48
BART (Rail Only)	64.6	58.7	51.9	56.6	59	65.1	62.6
LAVTA	11.8	13.8	14.5	15	16.3	17.9	15.5
Union City	15.6	15.2	16.9	14.6	14.07	14.4	12.63
ACE	NA	NA	NA	18.7	44.68	55.6	39.9
Alameda Oakland Ferry	58.5	74.3	88.4	92.2	107.2	89.7	76.56
Alameda Harbor Bay Ferry	NA	35.7	42.3	70.8	94.5	91.8	84.90
Totals	184.7	233.9	252.7	307.6	373.15	370.8	326.57
Non-Alameda Co. Operators							
CCCTA	17.2	16.4	17.1	16.7	17.1	NA	NA
SF Muni							NA
Motor Bus	68.6	68.3	68.3	67.5	70	NA	NA
Trolley Bus	79.3	77.7	78.5	77.7	77.3	NA	NA
Light Rail	110	101.2	102.9	83.7	87.8	NA	NA
SAM Trans	31.4	31.1	27.4	30.7	28.7	NA	NA
SCTVA-Bus	31.4	34.3	34.2	33.4	31.9	NA	NA
SCTVA-Rail	53.5	51.8	51.5	48.7	48.6	NA	NA
Bay Area System	NA	49.2	48.9	49.1	49.7	NA	NA

Source: MTC, Statistical Summary of Bay Area Transit Operators October 2001. FY 2000/01 data is provided by the transit operators by special request.

Table 18 shows the total number of passenger boardings for AC Transit, BART and ACE within Alameda County. Given the way data is collected and reported, it cannot be determined if the boardings are Alameda County residents. The data indicates that although boardings have increased since FY 1993/94, they have decreased in the past fiscal year.

As shown in Table 18, passenger boardings decreased for AC Transit, BART and ACE in FY 2001/02, corresponding with the downward economic trend. Over the last year, average weekday passenger boardings within Alameda County for AC Transit, BART and ACE have decreased about 5 percent from 327,804 boardings to 312,114 boardings.

Prior to the past year, substantial increases have occurred because AC Transit had added services over the previous three fiscal years. In addition, the improved economic conditions of the previous three fiscal years had led to an increase in employment and a subsequent increase in transit patronage. A notable increase in BART boardings occurred in 1997/98 due to the opening of the Dublin/Pleasanton Extension that provided service to east Alameda County increase through FY 2000/01.

Table 18 ~ Average Weekday Passenger Boardings* (per revenue vehicle mile) (AC Transit, BART and ACE)

Operator**	93/94	95/96	97/98	98/99	99/00	00/01	01/02
AC Transit ¹	174,460	181,061	183,285	194,430	197,626	207,887	199,258
BART	91,738	91,797	96,583	99,045	109,728	118,904	111,882
ACE	NA	NA	NA	506	513	505	463
Total	266,198	272,858	279,868	293,981	307,867	327,296	311,603

Source: AC Transit, BART and ACE staff

*Boardings are listed as unlinked trips, i.e., transfers are included

**All of the service provided by LAVTA, Union City, Oakland-Alameda Ferry is included within Alameda County and can be found in Table 15.

¹ Based on total weekday passenger boardings reduced by 12 percent to reflect Alameda County boardings only. The 12 percent reduction is based on hours of operating service in Alameda County and population served by AC Transit.

Vehicle Maintenance

Rail and bus transit operators have different indicators of vehicle maintenance.

- Bus operators report on Miles Between Mechanical Road Calls
- BART and ACE report on the Mean Time Between Failures

For all transit modes, fewer the miles between road calls or failures can be a sign of an aging fleet. The greater the number of miles generally indicates a newer fleet or a higher proportion of newer vehicles, and can also indicate improved training of mechanics maintaining the fleet.. As shown in Table 19, LAVTA reported 45,065 miles between mechanical road calls in FY 1993/94 and 5,304 in FY 2001/02. This indicates that over time, LAVTA's fleet is aging or, LAVTA staff has suggested that this may also reflect that they may have used a different method of reporting, previously. For example they may not have averaged all the buses in the fleet. However, over the last year, the miles between mechanical road calls have increased by 153

Alameda County Congestion Management Agency

percent. This increase may be attributed to the 1998/99 purchase of older buses that LAVTA has rehabilitated.

AC Transit reported 3,700 miles in FY 1993/94 and 7,123 in FY 2001/02, a 92 percent improvement in the number of miles between mechanical road calls for buses. The main reason for improvement in road calls at AC Transit was their major investment in mechanics' training. They instituted a mandatory apprenticeship program for all new and existing mechanics. This required the mechanics to take formal and on-the-job training. They also purchased approximately 250 new buses that performed better than most of their previous bus purchases.

The miles between mechanical road calls for AC Transit and LAVTA in FY 2001/02 is still considerably higher than the national average for both operators. The national average for miles between road calls/failures is 3,900 miles.

Table 19 - Miles between Mechanical Road Calls for AC Transit and LAVTA

Operator	93/94	95/96	97/98	98/99	99/00	00/01	01/02
AC Transit	3,700	3,670	6,609	7,965	8,195	6,975	7,123
LAVTA	45,065	25,107	24,034	10,467	10,273	25,985	5,304

Source: AC Transit, Short Range Transit Plan, 1994-2003 and 1995-2005 and LAVTA staff.

Regarding Union City Transit, in Fiscal Year, 2001-02, it had 239 service calls made to maintenance. The vast majority of them did not disrupt service and only 1 resulted in a missed-trip. The service calls are for a variety of reasons including mechanical problems, farebox issues, and broken lights. They include service calls to the dispatch yard, the bus terminals (BART) as well as vehicles in-route and vehicles that are either in-service or about to go into service.

BART and ACE collect data for determining the average time between service delays. Delays can be caused by personnel or by mechanical failures. Table 20 indicates that the BART system improved between 1994 and 2002, i.e., there were more miles between delays. The figures dropped slightly in 1995 and again in 1996. For 1997 through 2002, the figures have increased. Although the fleet has been aging, BART has been able to extend the life of individual cars by localizing specific problems such as door failures. With this knowledge, a program of door rehabilitation was instituted which reduced the amount of service delays. BART rehabilitated several of its rail cars in 2002, which can be seen in their increased time between service delays for the cars.

Table 20 - Mean Time between Service Delays for the BART and ACE Systems
(Annual Average)

Operator	1994	1996	1998	1999	2000	2001	2002
BART	1266	913	1,289	1,295	1,236	1,311	1,597
ACE	NA	NA	NA	2,395	3,620	4,604	3,357

Source: BART and ACE staff.

Major Mechanical System Failures

The Federal Transit Administration defines a major mechanical system failure as a mechanical problem in which the vehicle does not complete its scheduled revenue trip or does not start its next scheduled revenue trip because actual movement is limited or because of safety concerns. The failure may occur in revenue service including layover/recovery time or during deadhead. Transit agency employees or outside personnel may repair the vehicles. Revenue vehicle system failures are reported as major mechanical system failures if they limit actual vehicle movement or are safety issues.

Examples of major bus failures include breakdowns of air equipment, brakes, doors, engine cooling system, steering and front axle, rear axle and suspension and torque converters. Major BART vehicle systems include automatic train operation, brake, auxiliary electric, door, propulsion and electric couplers

BART had 1,409 major system failures in FY 2000/01, which was reduced to 1,167 in Fiscal Year 2000/02. This represents an 18 percent reduction in system failure in Fiscal Year 2001/02 compared to the previous year. Major system failure information for other operators was not available.

Other Mechanical System Failures

Other mechanical system failures are not included as major mechanical system failures. These include failures that because of agency policy prevent the revenue vehicle from completing a scheduled revenue trip or starting the next schedule revenue trip even though the vehicle is physically able to continue in revenue service. Examples of other bus failure include breakdowns of fareboxes, wheelchair lifts, heating, ventilation and air conditioning systems, and other problems.

Observations about the Transit System

Transit ridership decreased in FY 2001/02, which coincided with a downturn in the economy. Overall, however, in the past decade, transit ridership has gradually increased, resulting in a 16 percent increase in ridership between 1993/94 and 2001/02. Concurrently, there seems to have been a significant increase in the productivity of arterial transit service, i.e. bus service, from 1994 to 2002, due to the concentration of service on heavily patronized routes. Service concentration seems to have created a system that is simultaneously more responsive, more efficient and more effectively coordinated. Additionally, over time, there has been service expansion particularly on the rail lines with the opening of BART to Dublin-Pleasanton in 1997 and the implementation of ACE in 1998.

4 — BICYCLE

Implementation of the Countywide Bicycle Master Plan is a performance measure to indicate the degree to which planned bicycle facilities are developed throughout the county. On June 28, 2001, the ACCMA Board adopted the Alameda Countywide Bicycle Plan. Between July 2001 and July 2002 (Fiscal Year 2002), approximately 18 miles of facilities on the countywide plan were constructed. The Plan proposes 492 miles of bicycle facilities in Alameda County of which 157.7 miles already exist. The percentage of completed countywide miles is 36 percent, up four percent from last year. The facilities constructed on the countywide facility in 2002 are shown in Appendix E.

For the first Performance Report done in 1996, the number of miles of existing and planned facilities in the jurisdictions was determined by reviewing the Master Plans of the individual local bicycle plans prepared by each city or the County. This measure has been replaced by implementation of the Countywide Bicycle Plan described above. For the 2002 Performance Report, the total number of existing and planned facilities based on individual jurisdiction bicycle plans is reported for consistency purposes.

All 15 jurisdictions reporting for the 2002 Performance Report, provided updates on existing and planned facilities. With the construction of 18 miles of facilities in 2002, there are currently 176 miles of bicycle facilities that have been completed in Alameda County on citywide networks.

APPENDICES

- A. Designated Roadway System of the Congestion Management Program and Metropolitan Transportation System
- B. Level of Service Descriptions
- C. Transit Routing by Operator
- D. 2002 Top 10 Congested Locations in Alameda County
- E. Countywide Bicycle Facilities Constructed in 2002

Alameda County Congestion Management Agency

2002-2003 PERFORMANCE REPORT
December 18, 2003

APPENDIX A

**DESIGNATED ROADWAY AND TRANSIT SYSTEMS OF THE CONGESTION
MANAGEMENT PROGRAM AND METROPOLITAN TRANSPORTATION SYSTEM**

Alameda County Congestion Management Agency

2002-2003 PERFORMANCE REPORT
December 18, 2003

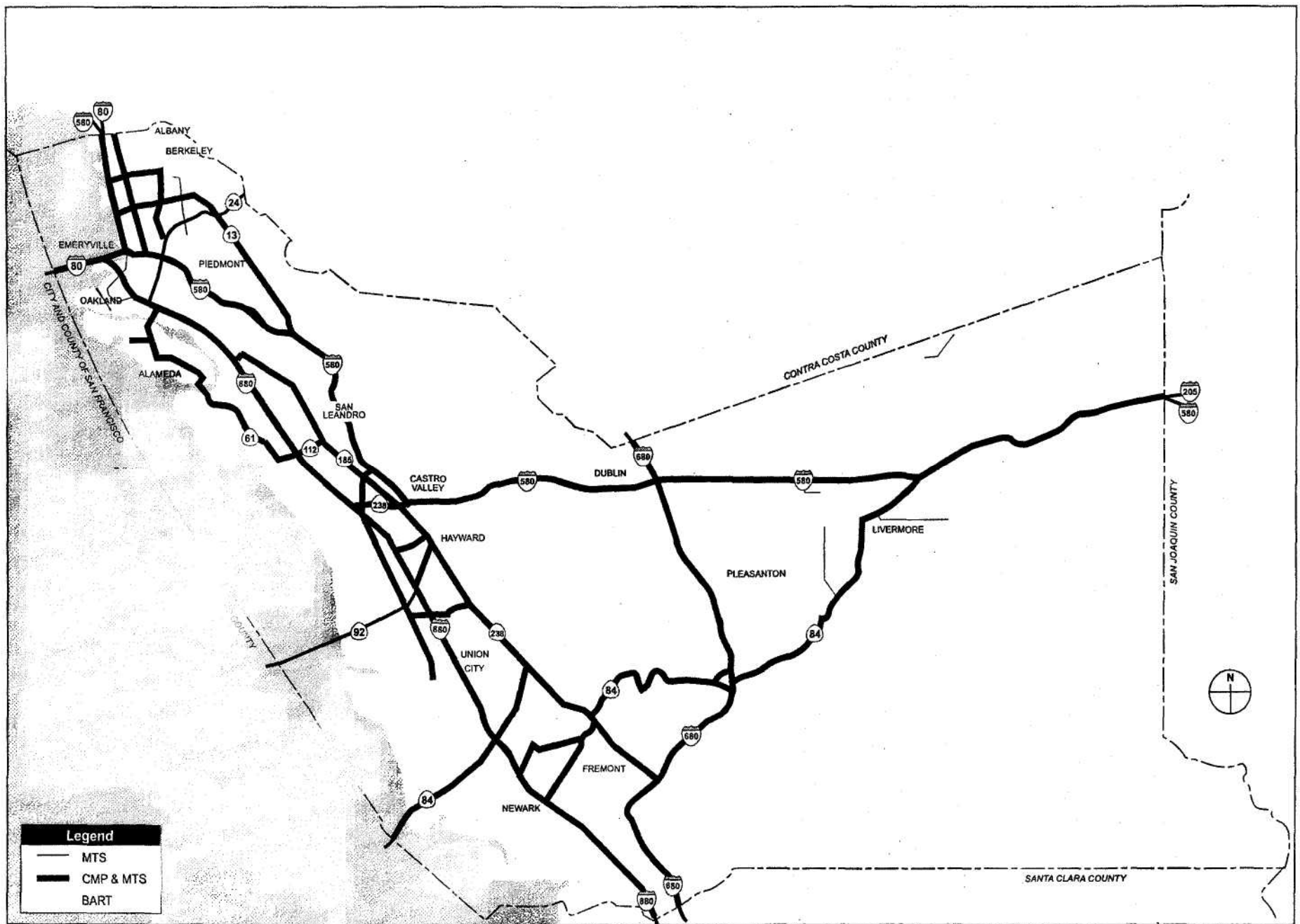


Figure A-1 MTS Roadway System

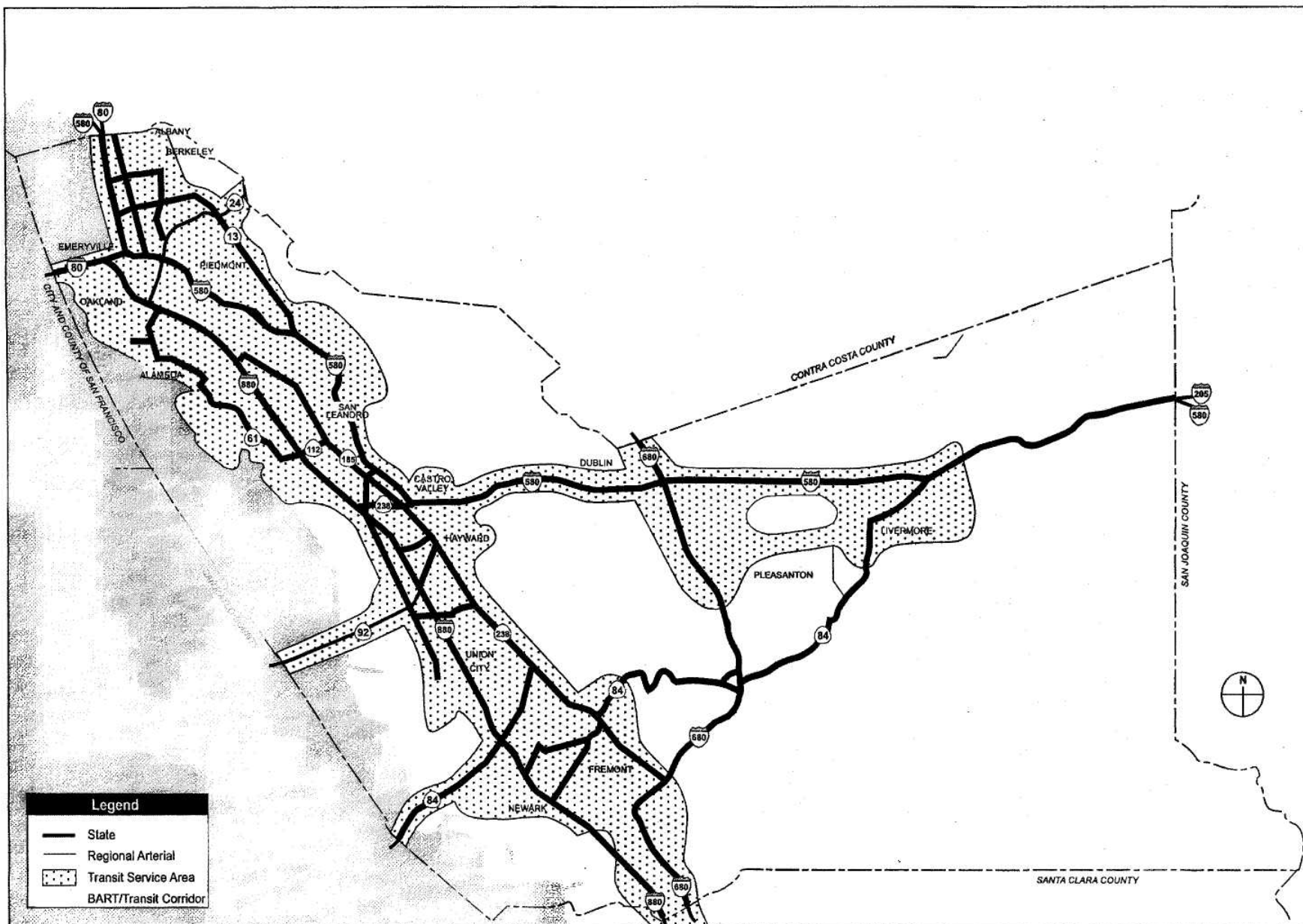


Figure A-2 MTS Transit System

APPENDIX B

LEVEL OF SERVICE DEFINITIONS

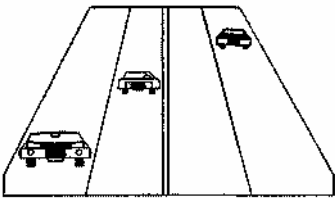
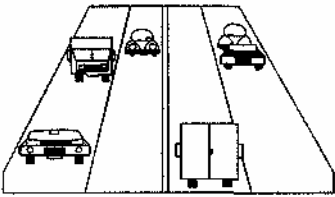
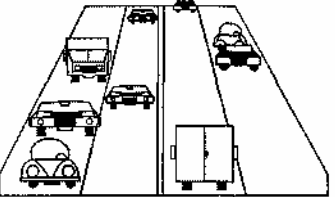
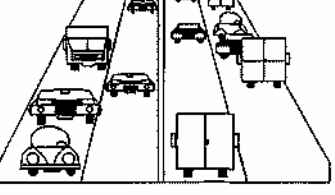
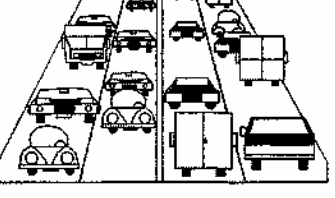
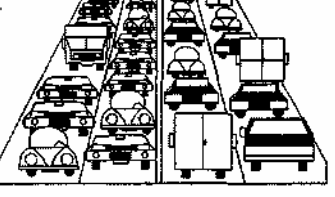
LEVEL OF SERVICE	FLOW CONDITIONS	DELAY	SERVICE RATING
A 	Highest quality of service. Free traffic flow with low volumes. Little or no restriction on maneuverability or speed.	None	Good
B 	Stable traffic flow, speed becoming slightly restricted. Low restriction on maneuverability.	None	Good
C 	Stable traffic flow, but less freedom to select speed or to change lanes.	Minimal	Adequate
D 	Approaching unstable flow. Speeds tolerable but subject to sudden and considerable variation. Less maneuverability and driver comfort.	Minimal	Adequate
E 	Unstable traffic flow and rapidly fluctuating speeds and flow rates. Low maneuverability and low driver comfort.	Significant	Poor
F 	Forced traffic flow. Speed and flow may drop to zero.	Considerable	Poor

Figure B-1

LEVEL OF SERVICE DEFINITIONS

APPENDIX C

TRANSIT ROUTING BY OPERATOR

Table C.1 - Directional Route Miles by Operator in Alameda County^{1,2}

	Year												
	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02
AC Transit 3	1924	1165	1245	1180	1184	1150	1111	1110	1098	1153	1173	1189	1194
BART4	70	70	70	70	70	70	70	97	97	97	97	97	97
LAVTA	187	187	187	187	195	146	146	284	284	284	284	284	385
Union City	56	70	70	44	46	48	48	48	48	62	62	62	45
ACE	NA	NA	NA	NA	NA	NA	NA	NA	NA	89	90	90	90
Total	2237	1492	1572	1481	1495	1414	1375	1539	1527	1685	1706	1722	1811

Notes:

¹ Source: MTC, Statistical Summary of Bay Area Transit Operators October 2001. FY 2000/01 and 2001/02 data is provided by the transit operators by special request.

² Directional Route Miles By Operator is a measure of surface area (roadway and trackway) served. For example, a one-mile segment of road or trackway over which transit operates in both directions would be reported as 2 miles, while a one-mile segment traversed by vehicles six times in the same direction would be counted as one-mile.

³ AC Transit data adjusted to deduct Contra Costa County. Based on hours of operating service in Alameda County and population served by AC Transit, total numbers were reduced by 12 percent.

⁴ BART data adjusted to deduct San Francisco and Contra Costa County. Data represents actual two-way route miles in Alameda County.

Table C.2 -- Total Vehicle Miles By Operator in Alameda County (in 000's)¹

	Year												
	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02
AC Transit ²	19048	19805	21165	18290	19654	22089	21657	19270	19450	19884	21586	22997	25487
BART ³	16151	15666	16913	17191	17676	22006	21603	25748	29328	29226	30612	31355	31177
LAVTA	1103	1197	1403	1384	1307	1299	1270	1356	1803	1937	2268	2220	2137
Union City	414	434	455	440	382	422	446	434	434	467	516	533	5384
ACE	NA	NA	NA	NA	NA	NA	NA	NA	NA	63	111	111	123
Total	36716	37102	39936	37305	39019	45816	44976	46808	51015	51577	55269	57473	59462

Notes:

¹ Source: MTC, Statistical Summary of Bay Area Transit Operators October 2002. FY 2000/01 and 2001/02 data is provided by the transit operators by special request.

² AC Transit data adjusted to deduct Contra Costa County. Based on hours of operating service in Alameda County and population served by AC Transit, total numbers were reduced by 12 percent.

³ BART data adjusted to deduct San Francisco and Contra Costa County. Based on percentage of trackway miles in Alameda County, total numbers reduced by 51 percent for fiscal years 1989/90 through 1994/95, 53 percent for fiscal year 1995/96, 48 percent for fiscal years 1996/97 and 1997/98, and 52 percent for fiscal years 98/99 through 01/02.

⁴—Union City Transit total vehicle miles reflect fixed route, not paratransit vehicle miles, which would add another 87,010 miles.

Alameda County Congestion Management Agency

2002-2003 PERFORMANCE REPORT

December 18, 2000

Page C-2

Table C.3 - Service Coverage By Operator in Alameda County¹ (in 000s)²

	Year												
	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02
AC	9.9	17.0	17.0	15.5	16.6	19.2	19.5	17.4	17.7	17.2	18.4	19.3	19.6
Transit ³													
BART	230.7	223.8	241.6	245.6	252.5	314.4	308.6	265.4	302.3	301.3	315.6	323.2	321.4
LAVTA	5.9	6.4	7.5	7.4	6.7	8.9	8.7	4.8	6.3	6.8	8.0	7.8	5.9
Union	7.4	6.2	6.5	10.0	8.3	8.8	9.3	9.0	9.0	7.5	8.3	8.6	11.9
City													
ACE	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4	3.2	4.1	4.1
Total	253.9	253.4	272.6	278.5	284.1	351.3	346.1	296.6	335.3	334.2	353.5	363.0	362.9

Notes:

¹ Source: MTC, Statistical Summary of Bay Area Transit Operators October 2001. FY 2000/01 data is provided by the transit operators by special request.

² Total Vehicle Miles/Directional Route Miles. A measure of the amount of service provided, including number of routes and frequency, on the transit system. For instance, a one-mile segment traversed by vehicles six times in the same direction would be counted as six-miles.

³ AC Transit data adjusted to deduct Contra Costa County. Based on hours of operating service in Alameda County and population served by AC Transit, total numbers were reduced by 12 percent.

⁴ BART data adjusted to deduct San Francisco and Contra Costa County. Based on percentage of trackway miles in Alameda County, total numbers reduced by 51 percent for fiscal years 1989/90 through 1994/95, 53 percent for fiscal year 1995/96, 48 percent for fiscal years 1996/97 and 1997/98, and 52 percent for fiscal years 1998/99 through 2001/02.

Table C.4 — Total Annual Passengers Boardings by Operator in Alameda County (in 000's)¹

	Year												
	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02
AC Transit ²	54,596	55,000	57,750	53,727	55,080	54,510	56,455	55,488	55,695	57,788	59,322	62,104	60,596
BART [*]	NA	26,143	26,634	26,452	26,604	26,165	26,165	28,009	27,565	28,723	31,364	34,601	33,117
LAVTA	680	775	824	796	858	860	981	1,135	1,433	1,594	1,836	2,201	2,037
Union City	450	473	502	504		433	472	493	525	493	504.7	555.4	477
ACE	NA	NA	NA	NA	NA	NA	NA	NA	NA	266	526	293920	804
Total	NA	82,391	85,710	81,479	82,963	81,968	84,073	85,125	85,218	90864	93552	100381	97031

Notes:

¹ Source: MTC, Statistical Summary of Bay Area Transit Operators October 2001. FY 2000/01 data is provided by the transit operators by special request.

² AC Transit data adjusted to deduct Contra Costa County. Based on hours of operating service in Alameda County and population served by AC Transit, total numbers were reduced by 12 percent. Total Systemwide Passenger Boardings were taken from Table 13 and reduced by 12 percent to represent Alameda County.

³ BART data adjusted to represent Alameda County passenger boardings by annualizing the Average Weekday Passenger Boardings with in Alameda County found in Table 18. An annualization factor of 290 was used for fiscal years 89/90 through 99/00 and 291 for fiscal year 00/01 through 01/02.

APPENDIX D

2002 TOP CONGESTED LOCATIONS IN ALAMEDA COUNTY

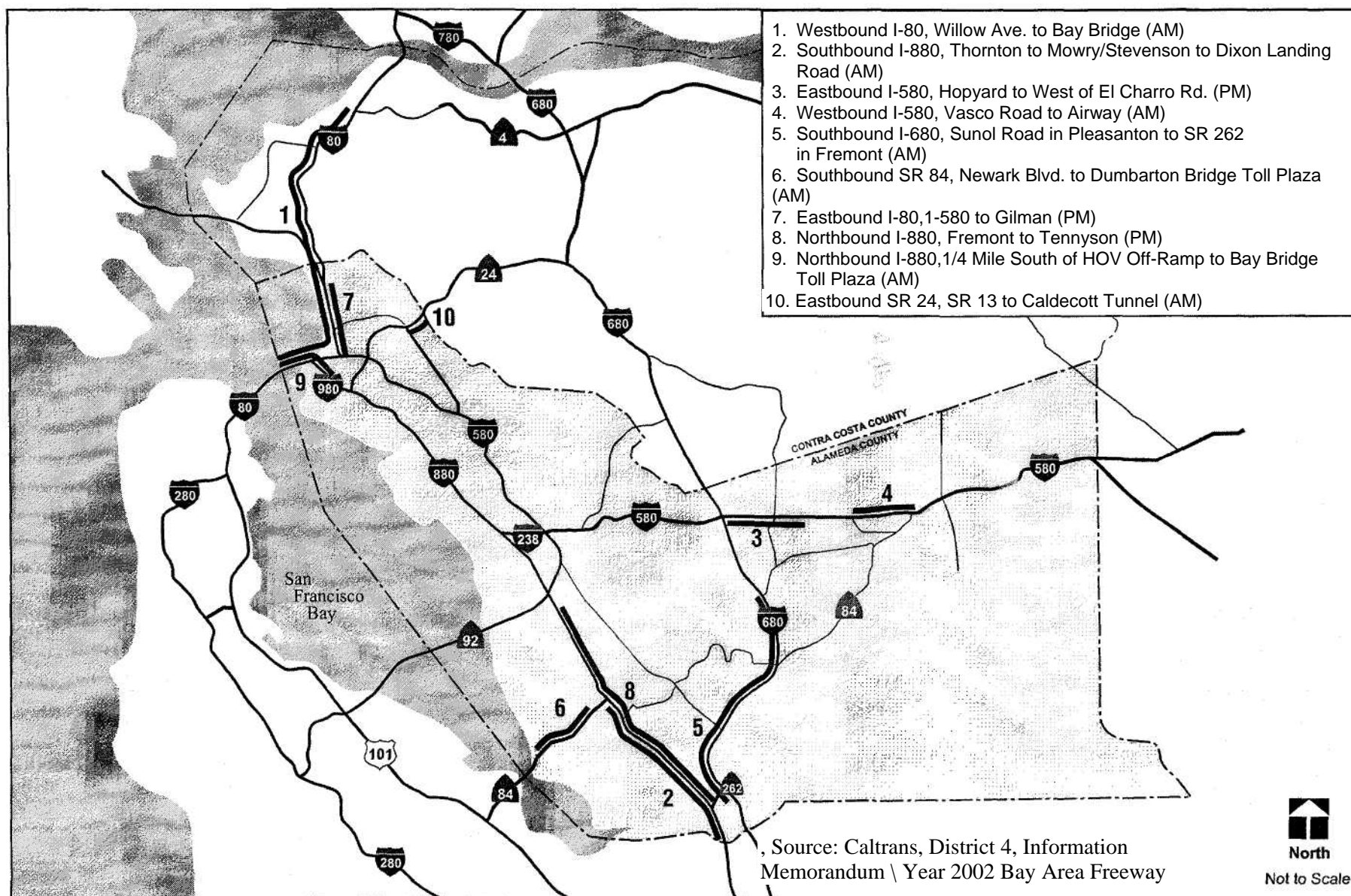


Figure D-1 2002 Top 10 Congested Locations in Alameda County

APPENDIX E

COUNTYWIDE BICYCLE FACILITIES CONSTRUCTED IN 2002

Table E.1 - Countywide Bicycle Facilities Constructed in 2002¹

Jurisdiction	Segment	Limits	Length (miles)	Countywide Bike Plan Segment Number
Alameda County ²	Foothill Blvd Bicycle Lanes	Castro Valley Blvd to 164 th Ave/Miramar Avenue	1.3	Project 13 Corridor 35 Segment DF through DH and part of DE
Alameda County	Iron Horse Trail	Dougherty Road to Dublin/Pleasanton BART Station	7.5	Project 34 Corridor 75 Segment TA
Oakland ³	Mandela Parkway, Class II		0.2	Project 1 Corridor 5 Segment AJ
Berkeley	8 th and 9 th Streets	Dwight Way to City of Albany	2.1	Project 6 Corridor 25 Segment AK
Berkeley	California Street-	King Street to Hopkins	1.7*	Project 6 Corridor 25 Segment SPUR 1A
Berkeley	Milvia Street	Russell Street to Hopkins Street	0.7	Project 22 Corridor 45 Segment AG
Berkeley	Hillegass Street	Woolsey, Oakland border to Bowditch Street at Bancroft Way	1.1	Project 11 Corridor 35 Segment AF
Berkeley	Russell	Heinz from 9 ^m to San Pablo	1.2	Project 22 Corridor 45 Segment AH
Berkeley	Channing Way	Fourth Street to Piedmont Street	1.0	Project 11 Corridor 35 Segment
Berkeley	Virginia Street	5 th Street to Euclid	1.2	Project 11 Corridor 35 Segment
TOTAL MILES			18.0	

¹ In Albany, a study is nearing completion that evaluates how the bike route along Cerrito Creek can connect with the Bay Trail via Pierce Street. The Cerrito Creek part of the trail is in the Countywide Bike Plan. Hayward is constructing a lane on Soto Road.

² Alameda County also constructed two bicycle lanes that are not within the Alameda Countywide Bicycle Plan: Grant Avenue and 167th Avenue.

³ The following one mile of bike routes was constructed in FY 01-02 in City of Oakland Bicycle Master Plan, but not in the Alameda Countywide Bicycle Plan: 1) 8th St, Market-Union, Class II, 0.5 miles, 2) Santa Clara Avenue, MacArthur Corridor Grand Ave-Vernon Street, 0.5 miles. Following 3.7 miles of Class II and III bicycle routes constructed in Fiscal Year 2002-03: Bancroft, 42nd-98th

⁴ The City of Berkeley constructed another 6.1 miles of bike routes within the City Bicycle Plan, but which extend beyond the limits of those listed in the Countywide Bicycle Plan. These routes include extensions of the California, Milvia, and Russell Streets and Channing Way bicycle routes, listed above.